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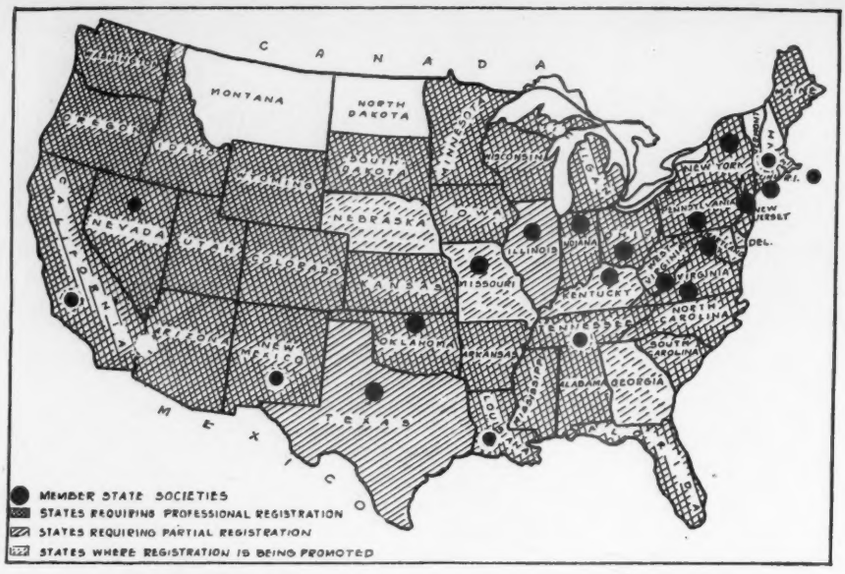

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THE COVER (The picture on our cover this month is by Courtesy of the Bethlehem Steel Corporation.)

During 1937 Labor has staged the leading act in the National Spotlight. A "schism" has developed because of two differing schools of thought—one horizontal—one vertical.

The Engineering Profession has the deepest admiration and respect for Labor—for its accomplishments and for its aims and objects. We feel this spotlighted workman, shown on the cover of our December issue, typifies Labor at its best—doing a good job and happy in its accomplishment.

The American Engineer assumes no responsibility for statements or opinions expressed by contributors. Their names identify the source of the same.

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EDITORIAL . . .

CHRISTMAS—

The Professions Bring Gifts

We think of a Profession as a vocation, an occupation, a business or art requiring long training, much experience and the use of sound judgment in its practice. This is SUBJECTIVE.

Do we adequately feel the purpose of a profession—its OBJECTIVE?

Are we not Professional Engineers so that we may do something to benefit others? Are we not working for man?

MEDICINE—with its healing of wounds, its curing of disease—its preventive methods to reduce spread of diphtheria, pneumonia, tuberculosis—gives clear cut evidence of the public service of a profession.

MINISTRY—with its direction of the moral and spiritual phases of human endeavor—its bringing of peace of mind to the body, of comfort to the soul—is distinctly an example of the true conception of a profession.

LAW—its aim to attain justice, its prosecution of the accused—its equal defence to prove innocence, its sitting in judgment—its verdict—its meting of reward or penalty.

ARCHITECTURE—with its striving for beauty of form—for symmetry—for functional use of space and position.

ENGINEERING—with its goal of safety—of comfort—of speed—its economic use of available materials—all to promote a more prosperous, happier state of living for man. It's increased facility for transportation, for communication—an all-service profession!

Will you at this Christmas season re-dedicate your engineering self to objective service? Will you think of the millions of happy people your bridge carries in safety to the city? Of the myriad of glasses of cool, thirst-quenching water, the supply of which you had some small part in providing; water that can be drunk from the city hydrant with safety by the tousled haired urchin.

Will you, in your most humble task of just tracing a line on a linen cloth—a line that may represent the length or width of a single beam in a new sky-scraper apartment house—feel that the beam you are drawing is part of a structure bringing happier living to hundreds?

If you will do this, Christmas will have a new meaning to you— and you will have greater joy in your own profession.

ROBT. HALL CRAIG

Address of Arthur V. Sheridan, President of the National Society of Professional Engineers, at its Third Annual Convention in New York City, October 9, 1937

Distinguished Guests, Ladies and Gentlemen: At the moment I find myself possessed of several emotions. No man in my position today could be human and not appreciate the compliment that has been paid to him by the members of this profession when at the same time my happiness is tempted by apprehension. Perhaps if people generally realized how arduous the task is, they would better appreciate the responsibility that accompanies the office.

While I am grateful, I am aware of no qualification beyond that of willingness, which justifies the confidence that has been imposed in me. However, the die has been cast and there is no alternative except to express, through service during the coming year, that feeling and sense of appreciation which I assure you is mine. In my opinion the time is not far distant when the office which has been conferred upon me will be deemed an outstanding honor to any member of the engineering profession on this side of the Atlantic ocean.

You have heard from Engineer Roche something of the Preamble of our Society's constitution. As in the case of two magnificent preambles which should inspire anyone who has a task in front of him, namely, the preamble to the Constitution of the United States and that to the constitution of the American Legion, the preamble referred to sets for the purpose of this Society the promotion of public welfare, believing that only by such measure can you eventually and effectually promote the professional welfare of the engineer.

For more than two thousand years philosophers and historians have discoursed upon, and even attempted to describe, what might be termed "a citizen of the world." Scarcely a century and a quarter ago, Napoleon dreamed of and attempted to develop conditions incidental to the existence of such an individual, and somewhere in the writings of Victor Hugo is to be found a dissertation on this self-same personage. Aside from internationalism which the speaker believes is an ideal scarcely likely of fulfillment in the light of the frailties and weaknesses of human nature, and eliminating the problems of language, of personal choice and of circumstance, the engineer today stands forth as a citizen indispensable to any nation on earth. He practices a calling predicated upon premises that are probably more universal than any other, and his practices are in themselves probably more universal than those of any other calling.

So long as mankind has gregarious instincts, so long as existence must take into consideration the physical, the engineer will remain a citizen of universal necessity. But in spite of his universal necessity and his universal qualifications for citizenship, he is probably the least consulted and the least represented in the councils of human affairs. Throughout the centuries he has been an ever increasing influence in the expansion and development of civilization, but through it all he has remained rather obscure in the audience of those who have played the role of administrators on the stage of human affairs.

For an engineer to attempt a discussion upon human affairs and particularly upon government may, to some people, be an evidence of temerity. But after all, government is merely an experiment; it is and always has been. No enduring criterion has to date been established, and the part that the engineer must play in the civilization for which he is so largely responsible, should be sufficient extenuation for entering upon the domain of social and economic considerations.

Much has been written upon the subject of government by historians, by sociologists, political economists and others; in fact one may find countless texts upon what is, unhappily, miscalled the "Science of Government." The only conclusion that a scientist or an engineer could possibly arrive at after considering the same, is that government is anything but a science. It has changed with every age, differed with every race and nation, and continues to be a source of endless controversy. It resembles a great river on its way to the sea; it ebbs and flows—is absorbed and reappears as a virgin rain of old ideas in new forms.

The engineer accustomed to investigation and demonstration before prediction and prophesy, must be amazed at the assurance of many of the preachers and exponents of the various "ologies" and "isms." The pronouncements which come from so-called experts in these fields, social, economic, political and psychological, the premises of which are based upon the shifting sands of personal opinion, are seldom mild or temperate in their tone.

An Einstein, an Eddington, a Jeans, great mental giants, ponder in awe over nature mildly predict an astronomical occurance to within a few seconds of the time, and perhaps gently disagree as to whether the universe is expanding or contracting, but some blatant exponents of economic doctrines find peers and parallels only among the medicine men of a circus sideshow and, unhappily for mankind, real progress is seriously retarded.

Most of us have some convictions. The right to express them as well as the right to proselyte must be recognized as inalienable, but the abuse of power, of knowledge or of privilege, is a menace to human society. As engineers it is our moral obligation to refrain from exploiting the rest of mankind, and it is also our inherent right to defend ourselves and our accomplishments from exploitation, from misrepresentation, and yes, even from perversion by others.

It is not in a sense or in spirit of "J'accuse" that one must ask what would happen to formal education, to the administration of justice, to the care and cure of the sick, to the conduct of industry and commerce, to the administration of public affairs, and yes, to the prosecution of a modern war, if engineers throughout the world were to sit supinely by. There is justification for posing these questions—Has the engineer played an adequate role in human affairs, international, national and local? Has there been a proper integration of the causes and effects of scientific accomplishment? Would not society benefit if the engineer did play a more active role and lend himself more freely to the affairs of society? To the National Society of Professional Engineers, to its confederate state organizations, their chapters and to the professional movement at large, the integration of public and professional welfare is a sine qua non to a real civilization for tomorrow upon such premises is it predicated and to a better America is it dedicated. Let us, therefore, bearing in mind the human equation upon which must depend the success or failure of any and all government, proceed, with the knowledge of the scientist and the deliberation of the philosopher, realizing that in the last analysis "we are but forders in the stream of time, spending whole decades vainly feeling for a sober stone ere we put forth the foot; each ticking of the clock announces change but only centuries record advance."

It is the engineer who must remove from the profession its incubuses and its parasites. It is he, also, who must bring about a better understanding between the public and the profession. He alone can eliminate misunderstanding and misapprehension and in the doing thereof benefit himself and remove a peril to society. And when one drives an evil from the state, he "betters his own sphere, hands down his name, pleases mankind, nature, and his God," and that is the most that any man can do.

Address of Mr. Chas. P. McGinnis, President American Institute of Architects, Delivered at 3d Annual Convention, N. S. P. E., October 9, 1937

Mr. President, Ladies and Gentlemen: I remarked that your Mr. Sheridan stumbled over my name, and not without some reason. I find it rendered on the program so as to suggest what we know to be the ironic definition of fame, which is to have your name spelled wrong in the newspapers.

I was interested to have Mr. Sheridan indicate the diffidence with which he accepted the great responsibilities of his office. Only recently I took over the responsibilities of the American Institute, and with equal trepidation, until I recalled that Neville Chamberlain had just taken over the British empire at my age.

I have behaved with much more composure since.

I want to tell you that it is a very great honor to confront so representative a body of a profession which is so vital and inevitably a part of our modern civilization. I don't know what you have been doing the past week, but I guess that you have been engaged upon probably grave and controversial issues. In this changing world of ours, normal and critical problems are developing which call to bear the immediate study of both our professions. The architect and engineer are challenged to engage their science to a more vital social purpose. It cannot be hoped that the significance of this opportunity will be any more clearly defined for us by our American public; it must be detected by ourselves, and the standing of both our professions may well depend upon the intelligence and aggressiveness with which we meet it.

As we seek to develop the frontiers of our professions, it is obvious that we meet a conflicting movement which seeks to limit those efforts. The issue suggested the effort to invade the integrity of the professional idea. Legislation has been attempted and actually been accomplished which would embody the principle that the public interest is adequately served by the identification of the engineer and the architect in the general organization of public works. The implications of this menace are unmistakable and it seems to me that they need the combined energies of your profession and of mine to combat them.

I venture to suggest that I speak for the entire membership of the American Institute of Architects when I say that nothing would be more contributory to the high purposes we both have in common than that we engaged our efforts more organically. I can't help thinking, that, as you convene against such a background as New York, you can hardly fail to be conscious that you share the responsibilities with my profession for the dramatic character of the Manhattan scene. Our professions met when the skyscraper was born; until that time I had a jaunty sort of idea that the difference between an architect and an engineer was that while both had to "keep their feet on the ground," the architect had to "keep his head in the stars," and here is a demonstration that both climbed into the ether side by side.

I suppose it is fair to say that, as a technical accomplishment, the skyscraper is one of the most interesting manifestations of the American spirit. The limits of its validity are still a matter of controversy, but it is clear that few communities care to be without some example of this lofty institution and in many an otherwise modest hamlet there is pride in the possession of a skyscraper, even where the prairie is right behind. It is so definitely accepted as the proud symbol of congestion.

It is singular that for a long time after the birth of the skyscraper, no challenge was made to the architect or to the engineer for the application of the same scientific approach to other problems which have since been addressed. That challenge now comes to us, however, in a philosophy which would utterly discredit historical forms. I suppose, being engineers, you are not unfamiliar with certain controversial exchanges as to the merits of the new artistic philosophy, for the reason that the new philosophers have a disposition to exalt the engineer at the expense of the architect. The most provocative of the new philosophers, LeCorbusier, simply damns tradition and perceives the engineer as reposing as if by virtue of the infallibility of his mathematics upon the very bosom of nature. He holds that the engineer is instinctively producing architecture and the architect, whose business it is, simply doesn't.

You leave me to translate the significance of the applause.

He maintains that the mind of the engineer has no distractions; that of the architect is cluttered up with historical images. One brings to his design the sole purpose of achieving function, the other muddles the logic of the situation by seeking an issue which is conscious bias of history. Obviously, this is controversial.

And I, for one, do not accept it. Functionalism, I maintain, is not everything. LeCorbusier maintains that it is.

I do recall the vision of an early electric street car. I thought it was extremely ugly and I wondered why. Superseding the horse-drawn tram, which conveyed the idea of cause and effect, it moved here and there without any apparent reasons, and that was offensive to my eyes, and I concluded that sometime in the vague future there would come to us some feeling—some perception—of that hidden force, and that that would temper the emotional feeling for the object itself. That change of mind, however, has not come, at least to me, and the electric street car is still not a beatific vision.

Analogous to the street car, I also thought of the New York ferry boat, and that is one of the most wonderful institutions I know of because, notwithstanding the fact that it is of most antediluvian design, it moves across the river in the vision of what is the most sophisticated segment of the world and functions perfectly; yet, at the same time, is the ugliest piece of architecture afloat. It goes from shore to shore, acknowledging no obligation to either side and with the most absolute neutrality of line, its stacks vertical. All the things one sees stand up and have no inclination either to one side or the other.

I find myself a little disturbed at the validity of Mr. LeCorbusier's thesis when I think of things like that, but I must hurry on.

I think we have to take account of other kinds of things besides pure function. The reasonableness of that theory seems to me to be based upon the idea that historical terms are damned and banished with all the other archeologies. Now why should that be so? Stone and brick are as plentiful as they ever were in the world, and if we were called upon to banish them and to adopt new material we'd all be obliged to be modern, one hundred per cent modern, with all the horrors that implies. It is inconceivable that those emotional forms associated with the architecture of the past can be reasonably rendered in terms of the new media.

I venture to say that it will be still a matter of controversy for some time to come, and yet I must acknowledge that the new movement has been influential in bringing to all concerned a clarity and vitality and independence which has been most helpful. Science has accomplished much, but there is still the consideration of art. We know, superbly functional as they were, the Greek temple and the medieval cathedrals were not mere mechanisms; logic cannot explain the serene majesty of the one or the intricate, mystical drama of the other. Behind them were spiritual principles which could find symbolism only in terms of the emotional element of beauty which must ever be present in the things which are to endure.

Reply by President Sheridan:

While professing a distinct dislike for modern psychology, I must confess that if I were what my impression of a modern psychologist is, I would venture the bold statement that Mr. McGinnis has spent many happy hours with Cervantes, with Voltaire and with, particularly, George Bernard Shaw.

Your very eloquent and, I must say, very scintillating address, Mr. McGinnis, is indicative of that feeling which we are trying to inculcate today in both professions. We realize that both have a distinct value from a material sense, but we also believe that both professions must give more of themselves, as individuals, in order that society may have the benefit of the beautiful thoughts which undoubtedly live in the mind of Mr. McGinnis.

In behalf of the profession and the audience, I wish to express appreciation for your inspiring address.

Address of Mr. John L. Carey, Secretary American Institute of Accountants, Delivered at 3d Annual Convention, N. S. P. E., New York City, October 9, 1937

Ladies and Gentlemen: Your Toastmaster must believe with Elbert Hubbard, according to that introduction, that "accountants are cold, unemotional, fishy-eyed people." Mr. Hubbard concluded, however, that after describing them as such, fortunately they "seldom reproduce and there is hope for future civilization."

It is no rhetorical flourish, ladies and gentlemen, when I tell you that I am very happy indeed to extend to you the greetings of the American Institute of Accountants. Our organization feels that it was a very gracious thing on your part to ask me to be present on this occasion.

No one could fail to be impressed by this meeting you are having here. There are eleven hundred people in this room, I'm told, and I can hardly believe that this can be only your third annual convention when your officers tell me your membership has grown to five thousand. The organization I represent is having its fiftieth anniversary here in New York on October eighteenth, and we are quite proud of the fact that we have five thousand members. Perhaps the presence of Mr. McGinnis, Mr. Bennett and myself at this meeting is indicative of a growing trend, a growing integration of interests, and I am happy that I happened to select that for the theme of a few remarks at this time.

I noticed, from a statement of the President of your New York State Society, Mr. Alfred Roche, the following sentence: "The technical problems of civil, mechanical, electrical and mining engineers are different but the professional problems are alike," and I thought perhaps that could be paraphrased to read as follows: "The technical problems of engineering, accounting, medicine, law and architecture are different, but the professional problems are alike."

Mr. Roche's text is that the different branches of engineering constitute a single profession, and my question (and I am pretty sure I know the answer) is that the different professional groups may constitute, in the whole community in a large sense, one social and economic unit.

It doesn't require much demonstration to prove that we have problems in common. I have read with a good deal of interest that little brochure entitled "Engineers' Registration," by your distinguished member Mr. Steinman, and I find in there you have struggled with the same problems exactly that the accountancy profession has struggled with in fighting for legislation providing proper credentials for our group—C. P. A.'s. I find that you have struggled with the difficulty of practice, with the constitutionality, with enforcement problems, with that problem of practice by corporations and with reciprocal relationships, all of which have occasioned kindred action to many members of the accountancy profession as well.

With particular interest I note in the pamphlet put out by your New York State Society just last month, that one of the accomplishments has been, as I remember the wording, "successful opposition to accountants' legislation which would have deprived engineers of the right to make financial reports."

It struck me as an exceedingly interesting thing that the only legislation introduced in this state since 1926 which could possibly have had that effect as far as I know, was also opposed by the New York State Society of Certified Public Accountants and the American Institute of Accountants, which I represent. It shows that the past procedure ought to be changed and when something of this sort arises our groups ought to get together. I don't want to belabor the fact that we have problems in common because that is what everybody's been saying for the last few days and it doesn't take me to prove it. But if you recognize that fact I think you will all agree that there ought to be some medium through which we could exchange information and ideas other than that which has prevailed in the past.

One of our major problems, and yours I am sure, is Public Relations. "Public Relations" seems to be a phrase which applies to the art and method of creating public good will or understanding of any particular group.

There has been hardly a meeting during the past five years at which the subject of Public Relations hasn't been on the program. There is no one in this room, I think, who hasn't heard otherwise intelligent people make rediculous charges against members of the medical profession. My own dearly beloved father and mother are "hipped" on the idea that they shouldn't go to a doctor, and I know many other people who feel the same way. I think the medical profession is doing something about it.

The legal profession has such a problem.

I know your organization is interested in Public Relations because I read in the same piece of literature from which I quoted, the following paragraphs: "The program of newspaper publicity on behalf of the profession in this state has been inaugurated." "We inaugurated a series of radio broadcasts." "Through our program in the papers we have induced recognition of the engineer to a point never before realized in the state."

I know the lawyers are interested because, at the American Bar Association's convention at Kansas City, a half-day session was spent on the discussion of topic—"The Relations of the Bar Association to the Public." A couple of nights before, Mr. Stinchfield, retiring President of the Bar Association, made an address which was broadcast nationally, in which he called for the public's support against the seeming hatred, to which I previously referred. He said, in part, "We have no chance for survival in the struggle except one—the people of the United States. From you flow all the press' power and all our influential interest. You have to choose between us."

The other day there came to my desk a little pamphlet issued by the Atlanta Bar Association of Atlanta, Ga. On the front page was a picture of a very handsome gentleman of the type that usually wears arrow collars, and below was the phrase, "Those who know him real well call him 'Counselor,'" and inside was a little story of what a lawyer was supposed to do for his client. I have been twelve years with the Institute, but I have never seen anything so significant. In connection with the other things I have mentioned, it shows an almost fearful desire on the part of the lawyers to gain public support, and I'll tell you we accountants are interested in Public Relations. Recently we have engaged, as a permanent member of our staff, an Assistant Secretary who will work chiefly in the field of public education and try to coordinate the work of the forty-eight state societies of certified public accountants, some of which are doing uncoordinated and spasmodic work in this field.

I wonder why the sudden interest in Public Relations and Public Good Will; it must be because we all sense, in the shifting economic scene, a kind of danger; we have an uneasy feeling that we may be exposed to attacks—that we are not as firmly established as we once thought we were, that from any quarter there may come a crushing blow, without any warning. One kind of attack we have had is an attack on our registration laws.

The first C. P. A. law in the United States was enacted here in New York in 1896. Since 1924 there hasn't been a session of the New York legislature in which some bill hasn't been introduced to break down that certificate in whole or in part, or to let in the people who hadn't any right to have it, and one year—two or three years ago—no less than eight states at one session had what we call "labor bills" introduced at the session. Just last year I was asked to go to Ohio on a legislative hearing on a bill. The bill provided that applicants of certain kinds, the group who were behind the bill, would receive credit toward passing the C. P. A. examinations for every year of public experience they had had. I think it was to be five points credit for each year of experience, so that a man who had had ten years of experience would have fifty points of credit on the examination before he even wrote his name on the paper and all he would have to do would be to make twenty-five points to pass. Fortunately, that was stopped before it passed the legislature.

Another was the unwitting attack from political sources. Our group suffered a little bit in this direction when several officials of the Securities Commission became irritated at a few cases which had come before them and loosed a broadside attack on the whole accountancy profession. Our group stoutly denied that the attack was ever merited and the officials admitted that maybe they had been a little too harsh.

Another possible source of attack is what you have been talking about here yesterday and today—the effort to unionize professional workers. There has been some effort on the part of the bookkeepers, stenographers and accountants unions to enroll staffs of the professional firms in New York, but after checking quite carefully I find that none have been enrolled. The common belief is that they are more interested in their professional societies than in any form of unionization, and although we may have trouble ahead we haven't encountered any in that direction.

There are, I think we can agree, many problems on which it would be advantageous

for all professional groups to confer and exchange ideas. The lawyer, engineer and accountant particularly are closely linked in business, and those who attack capitalism and attack business may link the professions in their minds with business. We have been more or less aloof; perhaps we have been too dignified—we haven't competed for the attention of the public; we haven't competed with commercial and other interests, and in the class struggle the professions are in the middle—they're not capital and they're not labor.

This seems to be the day of pressure groups, lobbyists, organized minorities, "rabble rousers." Doesn't it seem that it might be wise for the professions to link themselves, at least loosely, so they can present a united front to the public on the questions which affect them all?—I won't try to answer the question, I'll leave it with you for whatever consideration you think it deserves.

Thank you very much.

Response of TOASTMASTER SHERIDAN: The remarks of Mr. Carey are not only appropriate but very timely.

I think that he is aware of the fact that this Society has taken initial steps in the direction of attempting to bring about a sort of unified front by the professions. This is extremely necessary because of the overlapping. The doctor examines your milk, the engineer purifies your water, the lawyer appears in court on matters that have to do with real property; the engineer has to make decisions and determine perhaps where the real property is and what it is; the accountant has to prepare certified statements and make investigations, the engineer, too, has to prepare his estimates—he has to find out where the wherewithal is coming from. There is every reason in the world for bringing about the very closest relations. It is not betraying any confidences to say that it is the hope and aspiration of the National Society of Professional Engineers that, within a few years, there will be a complete understanding among all of the professions, both in the state and the nation, in order that one may not introduce legislation that is harmful to the other—not intentionally, but without thought and realization, perhaps—and that any legislation proposed, that any problems that affect us as professional men generally, can be discussed around a table before decisions are made and actions determined upon.

Thank you very kindly, Mr. Carey, on behalf of the National Society of Professional Engineers, and permit me to suggest that you may carry to your organization the expression that the National Society will go more than half way to bring about the proposals that you have suggested.

CHANGE OF ADDRESS

If the address at which you receive your AMERICAN ENGINEER has been changed, notify the Executive Secretary (*not* the Editor) without delay!

—Don't Forget—

All notices of change of address should be sent promptly to:

WILLARD S. CONLON
Executive Secretary
National Press Building
Washington, D. C.

SAN ANTONIAN TO DIRECT HUGE IRRIGATION JOB

From the San Antonio, Texas Express.

H. R. F. Helland, San Antonio *engineer*, was appointed recently to succeed Julian Montgomery as general manager and consultant engineer for Willacy County Improvement District No. 1, which is constructing a $5,000,000 irrigation project in the Lower Rio Grande Valley.

Montgomery resigned as State PWA director two months ago to accept the position. He later resigned when he was offered the position of State engineer.

Helland said that when the project is completed 75,000 acres will be irrigated. The project will take two years to complete. About $1,000,000 in contracts have been let and some of the construction work has started. Helland said.

Helland, a resident of San Antonio for the past nine years, said he will leave next week to take over his new duties. His family will move to the Valley later to live, he said.

WHAT THE CUSTOMER WANTS

From the Transit Journal, September, 1937

Getting the real "inside dope" on what the customers want is a hard job in any business catering to large numbers of people. Volume of sales reflects to some extent the popularity of a product, but it does not tell the whole story. Nobody knows how many sales are made bacause the purchaser considers the product to be the nearest approach to what he wants, though not the exact article. Nobody knows how many additional sales would be made if the product were slightly altered.

Certainly this is true with respect to transit service. Many people who use the service because it suits their convenience are not entirely satisfied with what they get. Unless they write letters of complaint to the operating company or to the local newspapers, however, the management is likely to remain ignorant of their feelings.

This is regrettable. While some of the causes of dissatisfaction may be beyond the ability of the company to correct, others are small things that could be fixed without much trouble or expense. Perhaps the transit industry could profitably take a leaf out of the book of one of the large eastern railroads which employs a bright young lady to do nothing but ride its own and other trains to find out what the passengers want in the way of equipment and service. From her suggestions have come a number of excellent revenue-producing ideas.

Why wouldn't this plan work well for a transit company? An alert observer looking for ways to make the service more attractive from the standpoint of the passenger could be a big help in getting more business. Every progressive transit management wants to do its utmost to satisfy its cutomers, but you can't tell what the customers want by looking down on the roofs of the vehicles from an office window. Nor can you discover it by questioning men whose primary attention is focused on operation or maintenance. The only person from whom you can find out what the passenger wants is the passenger himself.

STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUIRED BY THE ACT OF CONGRESS OF AUGUST 24, 1912,

Of The American Engineer published monthly at Harrisburg, Pennsylvania for October 1, 1937.

City of Washington } ss.
District of Columbia }

Before me, a Notary Public in and for the State and county aforesaid, personally appeared Willard S. Conlon, who, having been duly sworn according to law, deposes and says that he is the Business Manager of The American Engineer, and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in section 411, Postal Laws and Regulations, printed on the reverse of this form, to wit:

1. That the names and addresses of the publisher, editor, managing editor, and business managers are:

Name of—	Post Office address—
Publisher, National Society of Professional Engineers	Washington, D. C.
Editor, Robert Hall Craig	Harrisburg, Pennsylvania
Managing Editor, Robert Hall Craig	Harrisburg, Pennsylvania
Business Managers, Willard S. Conlon	Washington, D. C.

2. That the owner is: (If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding one per cent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a firm, company, or other unincorporated concern, its name and address, as well as those of each individual member, must be given.)

National Society of Professional Engineers, National Press Bldg., Washington, D. C.
President, Arthur V. Sheridan, County Building, Bronx, New York.
Secretary, Willard S. Conlon, National Press Bldg., Washington, D. C.

3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are: (If there are none, so state.)
None.

4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him.

5. That the average number of copies of each issue of this publication sold or distributed, through the mails or otherwise, to paid subscribers during the six months preceding the date shown above is 3,500. (This information is required from daily publications only.)

Willard S. Conlon

Sworn to and subscribed before me this 16th day of October, 1937.

Mary Franks
(My commission expires June 1, 1939.)

[Seal.]

Earnings of Engineers

By D. B. STEINMAN

(Editor's Note: One of the prime purposes of the National Society of Professional Engineers is to increase the compensation of Engineers generally. One of the factors upon which compensation depends is over-crowding in a profession. Dr. Steinman's article is of special interest because it points out clearly methods as being used to encourage young men to enter the engineering profession. Whether these methods are wise or unwise is the issue.)

To those who are complacent concerning the economic status of the engineering profession; to those who are apathetic to the disillusionment of recent graduates and to the hopelessness of older men; and to those who lend themselves to the painting of rosy pictures to attract high school boys into the engineering schools,—all under the disarming and sanctified cloak of "Guidance,"—this article is addressed.

In my daily correspondence and interviews, engineers young and old voice an insistent note of discouragement and futility. To the disillusionment of the young graduates who are unable to gain a foothold; to the heart-sickness of older men who find professional employment precarious, underpaid, or unobtainable,—what is the answer?

As a first step, a procedure which the profession itself, wittingly or unwittingly, is sponsoring and which most directly aggravates and intensifies the subsequent disillusionment of engineering graduates, needs to be corrected. I refer to the campaign of alluring propaganda directed at high school students. The word "propaganda" will be protested; it is propaganda, nevertheless.

I say it is a crime to present to prospective students a too glowing and attractive picture of the material rewards to be expected from an engineering training. The responsibility for subsequent distress and disappointment is on the heads of those who make the presentation, and on those who lend their names to its sponsorship. It is a crime against the young men, against the profession, and against society. All maladjustment is destructive to the well-being of society.

There may be those who deem it desirable to have an abundant supply of low-priced engineering employees always available. But I, for one, do not regard it as a service to society to cheapen a profession. It is not for the best interests of the public to have a profession underpaid and economically degraded.

For years, in speaking to students, I have counseled them against choosing engineering as a career on the basis of any anticipated monetary returns. If that was a governing consideration, they should choose some other vocation. If, on the other hand, they knew in their hearts that they would not be happy in any other calling and that they wanted to be engineers even in the face of prospects of inadequate and uncertain material rewards,—then, and only then, should they adopt engineering as their lifework.

I believe that this is the only sound and honest advice to give to prospective engineering students. If later disappointment is to be avoided, any representations of attractive potential earnings should be omitted from "guidance" literature. If prospective earnings are featured, the most scrupulous and critical precautions should be observed to avoid over-optimistic representations or impressions. If the bright side is pictured, the tragic side should also be emphasized. Lean years, depressions, unemployment, starvation wages, declining earnings,—all these are integral parts of the picture if the whole truth is to be impartially presented. The optimism of youth naturally focuses on the highest potential earnings shown. If the exceptional high earnings are cited, their naturally preponderant impression should be offset by unreserved revelation and emphasis of the starvation earnings to which thousands of engineering graduates have been reduced.

The most widely circulated piece of "guidance" literature under the aegis of the engineering profession is captioned: *"Engineering—A Career—A Culture*—A Message to Young Men, to Parents and Teachers." It was prepared in 1932 by the "Education Research Committee" of The Engineering Foundation, comprising representatives of five national technical societies and the Society for the Promotion of Engineering Education. The authors are not named, but my guess is that they were the usual cross-section of engineering educators, engineering society secretaries, and perhaps one or two corporation executives,—all of a type not generally characterizable as impartially disinterested in engineering enrollment. The final re-writing and dressing up were done by a journalist or publicity expert, who was retained for this purpose and who apparently interpreted this assignment, in the usual run of his work, as one of producing a piece of promotional literature of maximum sales appeal. The distribution and sponsorship of this pamphlet have been taken over by The Engineers Council for Professional Development, as the principal activity of its Committee on "Student Selection and Guidance." Thousands of copies have been purchased by the engineering schools and these in turn have distributed the pamphlets freely to high school students and college freshmen. Some 54,000 copies have already been distributed. The remaining 46,000 copies have now been turned over as a free gift by The Engineering Foundation to E. C. P. D. for distribution, and these are being offered to the schools and to other "guidance" agencies in wholesale lots at five cents apiece. The schools that have not yet participated in the distribution are being circularized to do so. Propaganda? Salesmanship? Enrollment stimulation? No, that thought must not be whispered. It is all done under the sacred name of "vocational guidance."

The introductory and descriptive chapters of the pamphlet need not be reviewed here, except to remark that every appeal to attract enrollment in the engineering schools is included and the other side of the picture is carefully avoided. If enrollment promotion, thinly disguised, is the objective, the booklet is a masterpiece of selection, phrasing, and presentation.

The concluding chapter, as the climax of the presentation, is entitled "Earnings of Engineers." Its most conspicuous and impressive feature is the graph, on page 60, showing earnings of engineers at various periods after graduation. Three curves are shown: Line A, represent-

ing the median of the lower half; Line B, representing the median of the entire group; and Line C, representing the median of the upper half of the group.

The eye is at once attracted to the upper curve, Line C, which is shown sweeping rapidly upward toward the conspicuously placed figure of $15,000 (actually about $14,000, by interpolation) at 30 years after graduation. Toward this point, the line curves upward with accelerating upward slope, suggesting even more glorious earnings beyond this edge of the drawing. The young man who sees this, with the natural confidence of youth, identifies himself with the more successful group and concentrates his aspiring gaze on this upper curve.

Does this graph give a correct representation of the facts? Is it true that, at 30 years after graduation, 75% of all engineers are earning more than $4500, 50% of all engineers are earning more than $7000, and 25% of all engineers are earning more than $14,000 a year?

We know that these figures are cruelly misleading. Hitherto it has been difficult to challenge such presentations, but now we have the facts.

The Bureau of Labor Statistics of the United States Department of Labor has just completed a survey of earnings of engineers, covering returns from 52,589 engineers. The findings are published in a report entitled *"Annual Income in the Engineering Profession, 1929 to 1934."* This also presents a graph. It is on page 9 of the printed report, and is captioned "Earned Annual Income of Professional Engineers in Engineering and Non-Engineering Work by Age in 1929—Primarily Income Reported by Graduate Engineers in Either Full or Part Time Employment."

A comparison of this graph in the government report with the corresponding graph in "Engineering—a Career—A Culture" reveals startling differences. The first feature that strikes the eyes is that the curves do not run steadily upward but suffer sharp breaks with subsequent rapid and accelerated descent. For graduate engineers in non-engineering work, these breaks occur at 21 years after graduation; for engineers engaged in engineering work, these breaks occur 29 to 37 years after graduation. The tragic significance of these breaks in the earning curves needs no comment. In the E. C. P. D. brochure, there is a brief reference in the text to declining earnings "in the sixties;" but the graph, which leaves the deep and lasting impression, gives no inkling of the breaks and declines in the earning curves; only upward sweeping curves are shown within the selected limits of the drawing.

Moreover, the curves in the government report are strikingly lower than the corresponding curves in the E. C. P. D. pamphlet. For the upper quartile or 25% curve, corresponding to "Line C" previously described, the figure at 30 years after graduation is not $14,000, but only about $7600. For the median engineer, the initial earnings are $1340 instead of $1700, and the earnings at 30 years after graduation are $5200 instead of $7000. For the lower quartile (25% earning less), the earnings are $890 for the first year instead of $1700, and in the 30th year they reach a maximum of $3600 instead of $4500.

In the government report, the earnings are also given in tabular form. Since separate figures are given for "engineering work" and "non-engineering work," these need to be consolidated into their weighted means for direct comparison with the curves in the E. C. P. D. graph. (This incidentally loses the significant sharp breaks in the separate curves). The resulting figures for "Earnings of Engineers in 1929" are presented here in Table I.

TABLE I

Earnings of Engineers in 1929
From Report of the U. S. Bureau of Labor Statistics
"Annual Income in the Engineering Profession 1929 to 1934"
(Based on Returns from 52,589 Engineers)

Years After Graduation	*Low (Median of Lower Half)*	*Median (Median of Entire Group)*	*High (Median of Upper Half)*
0	$ 890	$1340	$1940
5	2420	2800	3420
10	2990	3670	4880
15	3250	4300	6100
20	3500	4850	6800
25	3600	5050	7300
30	3600	5200	7600
35	3370	5300	7700
40	3060	4700	7400

In this and the following Tables, the columns marked Low, Median, and High correspond to Lines A, B, and C, respectively, in the E. C. P. D. graph. In other words, 25% of all engineers earn less than the figures marked "Low," 50% of all engineers earn less than the figures marked "Medium," and 75% of all engineers earn less than the figures marked "High."

The figures tabulated in this article are obtained by rough visual interpolation, and therefore probably involve some minor inaccuracies; but these will not affect the general conclusions.

Table I or curves plotted from it would be much nearer the truth than the graph in the E. C. P. D. pamphlet. But even Table I does not tell the whole story. It must be remembered that 1929 was a boom year of exceptional prosperity and engineering activity. The volume of engineering construction in that year and the volume of production in the other heavy goods industries reached an unprecedented and unequalled high level. When that level will ever be reached again, no one can tell.

To complete the picture, the earnings of engineers in a depression year also need to be shown. This is done in Table II, "Earnings of Engineers in 1934," also derived from the tabulations in the government report.

TABLE II

Earnings of Engineers in 1934
From Report of the U. S. Bureau of Labor Statistics
"Annual Income in the Engineering Profession 1929 to 1934"
(Based on Returns from 52,589 Engineers)

Years After Graduation	*Low (Median of Lower Half)*	*Median (Median of Entire Group)*	*High (Median of Upper Half)*
0	$ 330	$ 650	$ 990
5	1530	1860	2150
10	1940	2470	3080
15	2290	3030	4020
20	2390	3260	4520
25	2400	3450	5040
30	2350	3500	5170
35	2300	3560	5310
40	2290	3400	5700
45	1860	2990	5100

Note the initial earnings recorded in Table II: $330, $650, and $990, for the Low, Median, and High, respectively, instead of the uniform and constant starting

figure of $1700 promised or implied by the E. C. P. D. graph. The government survey shows that 25% of all recent engineering graduates earned less than $330 a year, either in engineering work or in such makeshift non-engineering employment as they could find.

Even Table II does not tell the whole tragic story. The text of the government report reveals more significant information. From 1929 to 1934, earnings of engineers in the respective classifications and age groups declined by amounts ranging from 25% to 70%. At the time of the census in 1934, almost one-tenth of all the engineers reporting were unemployed or on work-relief. Ten percent of all those who were unemployed at the end of the year, even though they were in those ages at which engineering earnings reach a peak, had made less than $300 that year. Of the recent graduates who were unemployed at the end of the year, 10% had made less than $114 a year. In 1929, only about 7% of all engineers were engaged in non-engineering work; the latter offered slightly higher incomes, and was an alternative to engineering work. But from 1929 to 1934, many non-engineering jobs were accepted, not by preference, but as the only alternative to unemployment or work relief. There was a lowering of the quality of non-engineering work that was accepted as an alternative to unemployment and starvation. Engineers took jobs as gasoline station attendants, apartment house janitors, and common laborers,—many of them never regaining a foothold in their chosen profession. All of this is hardly the picture produced in the student's mind when he reads, in "Engineering—A Career—A Culture," that there are "various occupations open to those trained in engineering, other than the professional field itself;" that "Engineering training adds to earning power in almost any walk of life;" that the trained engineer "should be the logical candidate for higher executive positions, with large salaries;" and that "a broad engineering education can be of high value as part of the preparation of young men for numerous other and quite different careers or for lives of purposeful leisure."

It will be argued that 1934 was not a normal year, but neither was 1929. The truth lies between these; both are required to give a complete picture, and both are shockingly lower than the picture of earnings given in the E. C. P. D. pamphlet. It is true that 1934 was a depression year, but other depressions are bound to come. The educator, in the security of his academic halls, is sheltered from the full impact of the economic struggle. He is not the best qualified to give an objective, impartial, and complete picture of what is in store for the prospective engineering graduate. The half-truth may be just as dangerously misleading as the untruth.

For comparison with Tables I and II, derived from the government survey, Table III is here presented, tabulating the corresponding earnings shown by the E. C. P. D. graph.

The E. C. P. D. graph is reported as being based on studies made by The American Society of Mechanical Engineers, by the American Institute of Chemical Engineers, and by the Society for the Promotion of Engineering Education. In any such survey based on questionnaires sent out by schools to their alumni or by societies to their membership, the returns should be discounted: the prosperous and successful are proud to show the best possible returns, and the down-and-out are not reached or prefer to withhold their confessions of failure. By the more successful, gross incomes are often reported instead of net earnings. Moreover, membership in an engineering society of a certain type tends to seek and attract only the more prosperous and commercially successful of engineers and non-engineers. The results of such surveys cannot have the validity of the government survey. The latter was disinterested, objective, impartial, and more comprehensive. The mailing list of engineers was prepared under virtually the same auspices as the E. C. P. D. pamphlet, and every effort was exerted to make the list complete. Anonymity was afforded, so there were no embarrassments to deter any replies. Responses were received from 52,589 engineers, making this the most comprehensive and dependable survey that has ever been made of the economic picture of the engineering profession.

TABLE III

Earnings of Engineers

As Represented to High School Boys
by *Engineers Council for Professional Development*
in *"Engineering—A Career—A Culture—A Message to Young Men—To Parents and Teachers"*

Years After Graduation	*Low (Median of Lower Half)*	*Median (Median of Entire Group)*	*High (Median of Upper Half)*
0	$1700	$1700	$1700
5	2500	3100	3800
10	3100	4200	5500
15	3700	5200	7200
20	4000	6000	9000
25	4300	6700	11200
30	4500	7000	14000
35	(Not Shown)	(Not Shown)	(Not Shown)
40	(Not Shown)	(Not Shown)	(Not Shown)
45	(Not Shown)	(Not Shown)	(Not Shown)

For a complete comparison, the three separate Tables I, II and III are here combined in a single tabulation, Table IV.

TABLE IV
(Composite of Tables I, II, and III)
Earnings of Engineers

Years After Graduation	Low Actual	Low per ECPD	Median Actual	Median per ECPD	High Actual	High per ECPD
0	$330 to $ 890	(1700)	$650 to 1340	(1700)	$990 to 1940	(1700)
5	1530 to 2420	(2500)	1860 to 2800	(3100)	2150 to 3420	(3800)
10	1940 to 2990	(3100)	2470 to 3670	(4200)	3080 to 4880	(5500)
15	2290 to 3250	(3700)	3030 to 4300	(5200)	4020 to 6100	(7200)
20	2390 to 3500	(4000)	3260 to 4850	(6000)	4520 to 6800	(9000)
25	2400 to 3600	(4300)	3450 to 5050	(6700)	5040 to 7300	(11200)
30	2350 to 3600	(4500)	3500 to 5200	(7000)	5170 to 7600	(14000)
35	2300 to 3370	(?)	3560 to 5300	(?)	5310 to 7700	(?)
40	2290 to 3060	(?)	3400 to 4700	(/?)	5700 to 7400	(?)
45	1860 to ——	(?)	2990 to ——	(?)	5150 to ——	(?)

This tabulated comparison should suffice to prove that the promotional pamphlet sponsored by E. C. P. D. is grossly misleading:

1. The E. C. P. D. graph indicates that the salaries of engineers, excluding the top and bottom 25%, range from $1700 to $14,000. The government survey shows that the corresponding range is actually from $330 to $7600.

2. The E. C. P. D. graph shows all engineering graduates (Low, Median, and High, and therefore *all*) starting at an identical initial income of $1700 a year. The text in the promotional pamphlet widens the range and states that higher initial salaries ($2000 to $3000) may be expected by those who spend one or more additional years in the engineering schools; but the graph certainly leaves the impression that all beginners are assured of a job at a starting salary of $1700. What are the facts?

Table IV gives them. The actual initial figures are $330 to $890 for the low earnings, $650 to $1340 for the median earnings, and $990 to $1940 for the high earnings.

3. At 30 years after graduation, the E. C. P. D. graph shows low, median, and high earnings of $4500, $7000, and $14,000 respectively. Table IV shows that the actual figures are: Low, $2350 to $3600 (instead of $4500); Median, $3500 to $5200 (instead of $7000); and High, $5170 to $7600 (instead of $14,000). The range is from $2350 to $7600, instead of $4500 to $14,000,—a reduction of nearly 50%.

4. The E. C. P. D. chart stops at 30 years after graduation, and thus avoids the graphic picture of the subsequent decline in earnings. Table IV records these declining earnings as derived from the government report. It will be noted that the decline rapidly accelerates, amounting to 10% to 19% between the fortieth and the forty-fifth years and undoubtedly marked by a still more rapid rate of decline thereafter.

If curves are plotted for the actual earnings recorded in Table IV and superimposed on the E. C. P. D. graph, the glaring discrepancy will become evident. The new curves will come nowhere near the $14,000 salary mark that catches the student's eye in the E. C. P. D. representation with the automatic suggestion of still higher earnings beyond the edge of the diagram. The downward slopes, missing from the E. C. P. D. graph, will now be revealed; and even the top curve, Line C, will prove to be concave downward instead of concave upward as depicted in the promotional pamphlet. The glittering promise of earnings rapidly sweeping upward at accelerated pace will be removed from the picture. And if the original government figures or graphs are used, instead of the smoother averages that have been interpolated in the foregoing tabulations, the sharp breaks in the earning curves will be revealed in their full saddening significance.

Look at the graph in the E. C. P. D. pamphlet and the graph in the government report. See for yourself the difference in the stories they tell. To the government graph, which shows earnings in the boom year of 1929, add corresponding curves (or broken lines) for the earnings in the depression year of 1934, if you want the complete picture. Then ask yourself whether the E. C. P. D. graph is the fair or honest representation to place before prospective students in connection with their choice of a profession.

What are E. C. P. D. and its component organizations going to do about this? Will they stop their wholesale distribution of thousands upon thousands of copies of their promotional pamphlet to prospective students? Will they withdraw the pamphlet from circulation until a revised and fairer presentation can be prepared? This is a challenge to those in control of E. C. P. D. If they have been lending themselves unwittingly to the sponsorship of that which is inaccurate and misleading, the honorable procedure is prompt disavowal and correction. The dishonorable procedure is a campaign of evasive rationalization and justification.

When will E. C. P. D. start on a program of Student Selection? That is a basic assignment and promise in its charter. This promise has not been kept. How long is this going to be sidetracked in favor of a disguised program of enrollment promotion? What is E. C. P. D. going to do to raise the level of qualifications for admission to engineering schools? That is a first essential step toward raising the cultural, professional, and economic status of the profession. It is a first essential step in reducing the tragedy and economic waste of the misfit, the half-trained, and the jobless.

I am not asking for any arbitrary limitation of the number of students admitted to the engineering colleges. I am asking for quality selection and for a progressive raising of the level of qualifications for admission. I am also asking, in the interests of society, the profession, and the students themselves, that the promotional stimulation of ever-increasing enrollment, by alluring or misleading propaganda, be stopped!

Readjustments Required for Recovery

Reprint from Public Affairs Pamphlet No. 11, published by Public Affairs Committee, National Press Building, Washington, D. C.

Concluded from October Issue

The Trade Agreements Act authorized the President to enter into commercial agreements with other countries to modify customs duties, and to bind against change existing tariffs on such commodities as could be agreed upon. As an aid to making these arrangements, the President was empowered to raise or lower duties by a maximum of 50 per cent.

This Act represented a definite effort to reverse the world trend toward ever-increasing trade restrictions. It recognized the fact that an increase in American exports was indispensable to a rounded prosperity in the United States, and that exports and imports were but two aspects of the same process. Prior to the adoption of the Trades Agreement Act, the United States was the only important country which fixed its tariff without bargaining with other countries. As a result, we had been losing the opportunity of obtaining special concessions from prospective customers who were, at the same time, anxious to increase the sale of their products in the United States.

In reaching agreements of this sort it was necessary to formulate a definite principle as to whether tariff reductions extended to one country would be granted to all others. It seldom happens that a particular commodity is supplied exclusively by one nation. Usually several countries are affected in addition to the one with which negotiations are being carried on. With a view to expanding trade as much as possible and getting the maximum advantages for its exporters, the United States has opposed all discrimination and has insisted that countries which enter agreements treat the United States as favorably as any other country. In return, we have agreed to extend our tariff reductions to all countries which do not discriminate against us. This is known as unconditional most-favored-nation treatment.

Up to the end of 1936, fifteen trade agreements had been negotiated under the Trade Agreements Act. All except that with Cuba—with which we have always had a special tariff agreement—are based on the most-favored-nation principle. Exclusive of Cuba, the agreements contained 386 reductions in duty, 20 promises not to increase a given duty, and 81 promises not to remove articles from the free list. About 20 per cent of America's dutiable imports are affected by the tariff reductions. The concessions made by other countries on American exports were fully as great. Thus the trade agreements can be said to be making a sizeable breach in existing trade barriers.

Trade Policy and Debts

The United States is not only a trading nation. It is also an important creditor nation. American citizens have invested billions of dollars in foreign enterprises. Foreign governments owe the United States other billions in war debts. In order to meet their obligations to this country, foreign debtors can obtain dollars only under four circumstances:

1. When Americans import more goods than they export;
2. When Americans buy more services from foreigners than they sell to foreigners;
3. When more gold is imported into the United States than is exported from this country;
4. When new American loans to foreigners exceed the flow of foreign funds to the United States.

In some years one of these methods has played a more important role than the others; in other years a different situation has prevailed. But the manner in which the result is accomplished may have a much more profound effect on our national prosperity than is ordinarily realized.

There has been no period in recent years when the United States has imported more than it has exported, but we have consistently paid out more for services than we have received from this source. In fact, the net payments to foreigners for services has been larger in each year except 1934 than our export balance. But in no case has the surplus been large enough to cover the amounts actually paid to the United States in interest and dividends on its foreign investments. Gold imports exceeded exports every year in the past decade except in 1928, 1932, and 1933, but the net import of gold was not large enough, except in 1934 and 1935; to make up the deficiency. Thus every year, except the last two mentioned, new American loans were necessary to enable our debtors to meet their obligations. In these last two years, payments on foreign obligations have been made possible primarily through the import of large quantities of gold and silver.

Obviously, this situation cannot continue indefinitely. If we wish to continue to receive payments from abroad—and failure to do so would work serious economic hardship on the country—we must either increase imports or reduce exports. But we have already seen that an *increase* in exports is an essential condition to continued prosperity. This leaves us with the necessity for providing for a rise in imports which is somewhat greater than the expansion of our sales abroad. This will take time; meanwhile, we shall probably have to resume, somewhat cautiously, private loans to foreign countries.

Monetary Stability

Both trade and loans depend, moreover, on a stabilization of currencies. As long as exchange rates are subject to violent fluctuations, traders have to be cautious in making sales on a long-term payment basis. Loans extending over several years are even more difficult. No one wants to lend money if there is a strong chance that he will get back less than he advanced. It is true that the depreciation of a currency gives the exporters in the country which has lowered the value of its currency a temporary advantage over their foreign competitors. But the advantage is soon lost as the result of a rise in domestic prices, and each experiment with currency depreciation adds to the fundamental disorganization of world trade.

The international understanding concluded in September and October, 1936, in connection with the devaluation of the "gold bloc" currencies marks an important step toward the restoration of world monetary stability. Such stability ultimately can be reestablished only through a return to an international gold standard. This is not the task of any one country alone. Cooperation between all the leading commercial countries is necessary. But it is evident that the United States as possessor of a substantial portion of the world's gold and as a leading

creditor country must play an important rôle Such a rôle is wholly consistent with the recent evolution of our monetary and commercial policies.

SUMMARY AND CONCLUSIONS

We have seen that the recovery movement which has been under way for approximately four years has not yet gone far enough to absorb all of the unemployed or to restore the pre-depression standards of living. Moreover, a number of elements of instability still exist which make the future quite uncertain. The following is sort of a balance sheet of our economic status at present. In listing first the favorable and then the unfavorable elements in the situation, we shall not make any attempt to indicate them in the order of importance.

Favorable Factors in the Present Situation

An abundance of loanable funds is available at low rates of interest. Owing to a combination of causes, the supply of both short-term banking accommodations and long-term investment money is now unprecedentedly large. Interest rates are extraordinarily low, and the prospect is that they will remain comparatively low for some time to come. While the abundance of funds at low rates may possibly stimulate speculative activity, it must nevertheless be set down as an important essential for business expansion.

The burden of private indebtedness has been materially reduced in the course of the last three years. The argument has often been made that recovery is impossible without a vast writing down of the bond and mortgage indebtedness that has been built up over a long period of years. Investigation shows that the private debt situation does not now constitute a deterrent to further recovery. As a result of a substantially higher level of prices, refunding at lower rates of interest and the replacement of bonds by stock, financial reorganizations and scaling down of mortgages, the shifting of debt from private to governmental hands, and a reduction in interest rates by government lending agencies, the burden of private debt has been appreciably mitigated. While there are still some difficult situations, in general there is no pressing need of further adjustment at this time

The trend with respect to wage and price relationships has been unusually satisfactory. Since the end of 1933 wage rates have gradually increased, while the prices of manufactured goods have remained at a practically stationary level. The purchasing power of the laboring population has thus been steadily expanded. Increasing efficiency of production and a fuller utilization of capacity have made it possible for wage rates to advance relatively to prices, and at the same time for profits to increase satisfactorily. It is to be noted on the other side, however, that in some important lines both wage rates and prices are so high as to impede the process of recovery and the expansion of employment.

The balance between agriculture and industry has been materially improved. This is attributable in part to normal recovery from the extreme depths reached during the depression; in part to the effects of dollar devaluation, which raised the prices of staple export commodities; in part to weather conditions; and in part to the government program of restricting agricultural production. There are still uncertain and complicating elements in this situation, but for the present at least the balance between the two great divisions of economic activity has been greatly improved.

Uncertainty with respect to monetary and banking policies has almost wholly disappeared. Legislation with respect to both commercial and investment banking has largely alleviated the fears of depositors and investors with reference to the security of savings. As a result of the business recovery that has occurred and the waning political importance of the groups which had been most insistent on accomplishing revival through money panaceas, there now appears to be little likelihood of further changes in currency policies. The Administration itself has for three years followed a policy of monetary stability and has taken a definite stand in favor of international stabilization, to be achieved as soon as conditions in general are propitious.

Developments in the field of commercial policy have been laying foundations for an expansion of foreign trade. As a result of the breakdown of the international monetary system between 1931 and 1933 and the growth of multifarious commercial restrictions, international trade was enormously curtailed and its restoration has shown a serious lag throughout the recovery period. The trade agreements being consummated under the leadership of the United States government are eliminating uneconomic restrictions and barriers and are thus clearing the way for a renewed expansion of international trade.

The enormous accumulated deficiency of production is a powerful stimulus to further expansion. The back-log of requirements in the field of durable goods is so great that we do not need to wait upon the development of any new industries to lead the way forward. The mere process of making good deferred maintenance and expanding production sufficiently to provide an increased population with the usual types of consumption goods would tax the nation's productive energies for some years. The opportunity for a great expansion along clearly defined, established lines has never been greater than it is today. Indeed, the impetus from this direction is largely responsible for the substantial increase of business activity during the course of the past year.

Finally, the confusion with respect to government policies has been greatly reduced. The conflicts and inconsistencies which were the inevitable accompaniments of a government recovery program, forced by insistent pressures and undertaken with the double objective of recovery and reform, have been largely, though not wholly, eliminated during the course of the past three years. Moreover, the atmosphere of doubt, uncertainty, and distrust arising from conflicting theories, opinions, and policies as between governmental and business leaders has in substantial degree been dissipated.

Unfavorable Factors in the Present Situation

On the darker side of the picture, interest centers not so much in the number of adverse factors as upon the vast potential significance of some of them. In fact, any one of several possible trends or developments might completely change the whole economic outlook.

The maintenance of fiscal stability remains a problem of major difficulty. Our analysis shows that an early balancing of the federal budget is economically possible, but that such a consummation will require resolute action in curtailing wasteful and unnecessary federal expenditures. There is undoubtedly a strong disposition now to place the federal credit upon a secure foundation; but, economic, social, and political pressures for the continuance or expansion of government disbursements are powerful, and it remains an open question whether they can be successfully withstood. If fiscal stability is not achieved, the resulting financial and monetary disorganization and price inflation would in due course completely disrupt the process of constructive economic expansion now under way.

There is some danger of an inflationary movement generated by forces operating in the field of private enterprise. The existence of superabundant bank reserves and investment funds, as has already been indicated, provides a basis for and something of a stimulus to speculative activities and credit and price inflation, both in the security and commodity markets. This situation has, however, existed for some little time without producing the results so frequently predicted. Thus, one must conclude that the money market situation is not necessarily of controlling importance with respect to commercial inflation. The most direct pressure in the direction of higher prices is that exerted by factors related to industrial costs and market conditions. Rapidly rising costs in a time of expanding and buoyant business activity lead to a rising spiral of prices, costs, and again prices. An abundance of credit which lenders are desirous of putting to work makes possible, facilitates, and encourages such a price inflation. At the present juncture the possibility of such an inflationary movement—having temporarily stimulating effects but promoting longer run instability—is very real.

Emerging labor policies endanger the recovery process.

The most important among these policies is that pertaining to the reduction of working hours, on the mistaken theory that we can thus raise standards of living. The sharp rise in costs, unrelated to efficiency, would be certain to result either in rapid rises in industrial prices, with profoundly disturbing effects upon the operation of the economic system as a whole, or the immediate halting of business activity with a consequent increase in unemployment. The struggle now going on within the ranks of labor over conflicting theories of labor organization and the intensive efforts being made to strengthen the power of labor over industry constitute a serious menace to the continuance of business prosperity.

Ill-conceived industrial legislation would also serve to check the recovery movement. Current discussions and preliminary drafts of legislative measures indicate at one and the same time a laudable desire to safeguard public welfare through legislative provisions with respect to industrial practices, price policies, wages, hours of work, output, capital expansion, and so forth, and endless confusion and conflicts of opinion as to the regulatory policies that would bring about the desired results. Premature legislation along these lines would give rise to a new period of uncertainty and confusion.

Finally, mention must be made of highly unstable elements in the international situation. In many countries the expansion of business activity has not been built on sound foundations. In numerous instances it is largely attributable to military programs which, while they generate temporary business prosperity, do not directly raise standards of living or increase wealth-producing capacity. They involve at the same time vast expenditures of public funds which simultaneously increase the burdens of taxation and threaten financial stability. The condition of public finance in the world at large constitutes a fundamental factor of instability everywhere. A new series of fiscal and currency breakdowns with adverse effects upon American trade and finance is quite within the bounds of possibility. The threat of new wars not only forecasts the possibility of renewed wealth destruction, but also constitues a barrier to the reestablishment of constructive international economic policies. The present recovery movement is unique in this regard.

An Integrated Program

The foregoing recapitulation readily suggests the primary requisites and elements of an integrated program designed to promote further recovery. The underlying necessity, to which every policy must be related, is the reabsorption of the unemployed in productive activities. Only thus can improving standards of living be realized. Whatever merit production restriction programs may have possessed as a means of correcting in special cases serious maladjustments in the depths of depression and of stimulating the beginnings of recovery, they have no regular place in the continuous process of economic progress. An expansion in *real* incomes depends upon an increase of productive activity; it cannot be derived from an artificial expansion of *money* incomes, unaccompanied by increases in the output of goods and services.

In brief, the essential requirements for a consistent program of further recovery may be summarized as follows:

The reestablishment of a balanced federal budget as a foundation on which to build enduring progress.

The continuance of the present policy of maintaining a fixed price of gold and the establishment through international cooperation of a system of stable foreign exchanges.

The extension of the program of reciprocal trade agreements as the most practical means of reducing artificial barriers to commerce and reopening the channels of international trade.

The preservation of the generally favorable ratio of prices and wage rates, in the interest of progressively expanding the real purchasing power of workers and creating a demand for added production and employment—placing emphasis upon price reductions as a means of carrying the benefits of technological progress to all groups within the nation.

The maintenance, in general, of prevailing hours of labor, as the only means of meeting the production requirements involved in restoring during the next few years the standards of living of the laboring masses and promoting the economic advancement of the nation as a whole.

The elimination of industrial practices and policies —private and public—which tend to restrict output or to prevent the increase of productive efficiency.

Shifting the emphasis in agricultural policy from restricted output and rising prices to the abundant furnishing of the supplies of raw materials and foodstuffs required by gradually expanding markets.

The economic situation today is one of delicate adjustment and precarious balance. In a very real sense the world stands at the crossroads. We may move gradually forward along a broad front, achieving progressively higher levels of well-being; or we may suffer a reversal of current trends and enter upon a new period of recession, involving further deterioration of living standards and bringing a new era of disorganization, the consequences of which no one can foresee. Which way we go will largely depend upon private and public policies now in the making.

The lesson of the world depression is that all groups are indissolubly linked in a common enterprise. No nation, no class, and almost no individual could escape the devastating effects of the collapse of the economic system which began in 1929. The economic advancement of laborers, clerical workers, professional groups, business men, and farmers all depends upon our pulling together, with the aid of government, toward the common objective of increased production and higher living standards.

National Council of State Boards of Engineering Examiners at October Convention in Scranton, Pennsylvania

Report of Committee on Legal Procedure

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
Arizona	1	1			2			2						1	1				
Arkansas	3	1			4			3			1			2	1	1			
California	42	1	10		26	3	24	33		7	13		4	40			9		
Connecticut	7		1	1	7	2		7	2				3	2	3				1
Florida	13	5		39	57			49				8	11	9	2	4			31
Hawaii	3				3			3						3					
Indiana	15	2			12	1	4	14	3				2	9	1	1			4
Maine	1				1			1							1				
Michigan	1					1					1						1		
New Mexico	2				2			2							2				
North Carolina	1	1			2			2							1	1			
Oklahoma	6		1	8	6	1	8	9	2	2	2			6	6				3
Oregon	13		1		13		1	12		1	1		1	12				1	
South Carolina	10				3	1	6	9			1		2	2	5				1
Virginia	12	12			22		2	24					7	2	5	9			1
Washington	3				1	1	1	1			2			1					2
West Virginia	1				1						1				1				
Wisconsin	1				1								1						
Louisiana	5				5			5						5					
Total	135	23	13	48	163	10	46	171	7	11	22	8	31	89	29	16	10	1	43
		219			219			219					219						
New York		153																	
		372																	
Louisiana		5																	
Total		377 cases in 1 year.																	

With the feeling that your Committee on Legal Procedure could best serve by gathering data on violations as to type, source of complaint, procedure and results, the following questionnaire was submitted to all member boards:

Data for Committee on Legal Procedure
National Council of State Boards of Engineering Examiners

In the following list give actual numbers of cases:

TYPE OF COMPLAINT

A. Illegal practice where registration was never obtained,—
B. Illegal practice where registration had lapsed,—
C. Violation of professional ethics,—
D. Unclassified above—state nature of case,—

SOURCE OF COMPLAINT

E. Some registered engineer,—
F. Some individual not an engineer,—
G. Some engineering society,—

PROCEDURE ON COMPLAINT

H. Merely letter of notification to party complained against,—
I. Merely letter of notification to employer,—
J. Hearing conducted by the board,—
K. Filing of legal charges,—
L. Unclassified above,—

RESULTS

M. Complaint unfounded or not fully sustained,—
N. Agreement to discontinue practice,—
O. Filing of application for registration,—
P. Filing of application for reinstatement,—
Q. Conviction in Court of Law,—
R. Failure to convict in Court of Law,—
S. Still pending,—

It was explained that the tabular form was added for the purpose of breaking down into greater detail the information given above it. Also it was requested that details of especially significant cases be given and comments or additions be freely made with a view toward making the report more valuable.

Replies were received from Alabama, Arizona, Arkansas, California, Connecticut, Florida, Hawaii, Idaho, Indiana, Kansas, Louisiana, Maine, Michigan, Minnesota, Nevada, New Mexico, New York, North Carolina, Ohio, Oklahoma, Oregon, Pennsylvania, South Carolina, South Dakota, Virginia, Washington, West Virginia, Wisconsin, and Wyoming.

Numerical values were actually filled into the questionnaire forms by Arizona, Arkansas, California, Connecticut, Florida, Hawaii, Indiana, Maine, Michigan, New Mexico, North Carolina, Oklahoma, Oregon, South Caro-

Engineers Making Monkeys of Us Again, Warns Savant

By the Associated Press.

New York, Dec. 8.—Dr. Earnest A. Hooton, Harvard's famous evolutionist and anthropologist, tonight predicted that man was in danger of reverting to apedom, and said the skids for his descent had been built largely by engineering.

Dr. Hooton, in the guest address to the American Society of Mechanical Engineers, called on the engineers to divert some of their high creative intelligence to stopping the down rush.

Through thousands of years, Dr. Hooton asserted, man kept his mechanical progress in abeyance by killing off the geniuses. In the last ten thousand years, however, the masses have permitted the engineer to live. The result is that most of us "exist parasitically upon the inventive genius of the few."

"The once erectly striding biped," Dr. Hooton went on, "abandons human locomotion and whizzes through the landscape, crouched over wheels and levers worked by his still prehensile hands, and his flat, vestigial feet, no less useful for this purpose than those of his Simian ancestors."

"A premium is put upon illiteracy by the radio and the talking moving picture. These mechanical marvels are the means of world-wide spread of vulgarity, depravity and misinformation . . . stimulated by turning a switch or pressing a button—motor performances without the capacity of a lemur."

"Man made himself out of an ape partly by becoming an engineer. The danger now is that the process will be reversed and the engineers will make apes out of us all."

From the *Washington Post*, Dec. 9, 1937.

lina, Virginia, Washington, West Virginia, and Wisconsin.

Alabama's Board was not organized until last year and is too actively engaged in registration to look to enforcement as yet. In Idaho enforcement is entirely handled by the individual counties as the appropriation of the Board is not sufficient to adequately police the state. In Kansas registration is entirely voluntary and the Board has not heard of any cases where unregistered engineers have attempted to practice as registered engineers. The Louisiana Board had had no meeting since May and, for that reason, no action was taken on the questionnaire. The Minnesota Board has had no cases in court and had no violations to report. Nevada has had no complaints. In New York investigations are conducted through a Bureau in the State Education Department which reports for the year 1936 a total of 153 engineering complaints. Of the 15 complaints received against licensed professional engineers 13 were closed during that period and of the 138 received against unlicensed practitioners 73 were closed. In no instance was it necessary to resort to criminal prosecution. A number of these cases involved the use of various engineering titles as well as some cases of unlawful practice. Some complaints were dismissed after investigation, some led to filing of application for registration, but the majority were closed upon assurance of the unlicensed person that the practice would be discontinued. There were no criminal prosecutions.

The Ohio Board did not return questionnaire because the information was soon to be available in the roster. Pennsylvania has had reported about 100 cases of firms illegally using the title of "Engineer" or "Engineering." In practically all cases the Board has been successful in eliminating the word "Engineer" or "Engineering." In some cases registration has resulted from the complaints. In one instance the Board revoked the certificate of registration of an engineer for making false statements to the Board. The engineer appealed to the Dauphin County Court, the hearing was held in June, 1937, but as yet no opinion has been handed down. The South Dakota Board sends its Sixth Biennial Report, which prominently carries the Attorney General's opinions that "public monies cannot be paid for professional services to non-registered parties" and that "non-registered parties cannot collect for professional services." Wyoming reports no complaints during the year.

The results from the 18 states sending in tabulated returns are given in the table below:

The table shows 53 investigations for California. Actually more than 100 were made, but the unreported ones were too trivial to be made a matter of record. Of the 9 cases listed under "Q" for California 6 were convictions in Court of Law and 3 were license revocations.

Florida calls attention to the summary of its law enforcement activities in its State Board Year Book. Hawaii reports that great respect is shown for the registration law and in consequence very little trouble. Indiana has recently been getting complaints that unregistered men are appointed as city engineers and city building inspectors. Maine reports excellent compliance with the law. In Oklahoma law enforcement is not in the hands of the Registration Board but is administered through a Committee on Enforcement by county attorneys. Much work, not recorded in the above table, has been done by this committee in anticipating violations and successfully discouraging them. Oregon reports fewer complaints during the past year than for a number of years.

The great majority of complaints under "D", unclassified, are for use of the title "Engineer" or "Engineering." It is interesting to note that individual engineers are most active in making the complaints, with engineering societies quite active also. It is gratifying to find that a very large proportion of cases need only a letter of notification, as shown in column "H", to the offending party, that in only a very few cases is it necessary to file legal charges, and that the actions of the boards are nearly always sustained.

The totals for the 18 states reporting with numerical detail are given again in the original tabular form below:

It is hoped that a study of these figures, with their inter-relations and their proportions, will prove interesting and valuable not only as to trends in law enforcement problems but as a guide to most favorable procedure.

	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
	+5			+5						+5					
A	99	9	27	95	5	6	21	8	20	73	21	4	7	1	8
B	22	1	0	20	2	0	1	0	6	1	4	12	0	0	1
C	2	0	11	8	0	5	0	0	4	4	0	0	3	0	2
D	40	0	8	48	0	0	0	0	1	11	4	0	0	0	32
Totals	163	10	46	171	7	11	22	8	31	89	29	16	10	1	43

Origin and Derivation of the Term "Engineer"

By **G. G. LAUREYNS, P. E.**

1. Sancrit and Ancient Persian: *Jinn*—a spirit.

2. Tedescan (Tuitsch): *Gen*—a radix, implying capacity, amplitude.

3. Early Greek: *Gigno*—I inspirit, I engender.

4. Latin Greek: *Gennio*—I engender, I inspire.
   Also *Geno*—I engender, I inspire.

5. Early Latin: *Gigno*—I beget, I generate.
   Also *Geno*—I beget, I generate.
   From Above: *Geno*—Genui—Genitum—Generare To sire, to beget, to generate.
   Genius—Originally to tutelar demon assigned by the Deity to each human. (We still use it thus and sometimes in the sense of "soul").

6. Latin: (Derivatives) *Ingenium*—Inward genius—Ingenuity, inspiration, originality—resourcefulness.
   In-genitus (a)—One who has acquired ingenium.
   In-genitor—One who professes to be ingenitus.
   In-genius—A male recognized as being ingenitus.
   In-genia—A female recognized as being ingenita.
   Ingenior—One admittedly more advanced than either of the three preceding.
   (In this series the prefix "in" implies "inspirited by the personal 'genius'—'entry' ".)

7. Early Medieval French: *Genie*—The faculty of being inspired. (Also the tutelar demon above described).
   Engin—A device conceived or created by an ingenior. (here the prefix "en" implies achievement, completion).
   Enginier—Engineur. He who operates an engine.

8. Modern French: *Ingenieux—Ingenius*—Resourceful.

9. Modern French:
   Modern German
   Modern Netherlandish
   Modern et alii
   Genie—(See above)
   Also the profession of Technical Engineering considered as a whole. (Compare to *BAR* in the legal profession.)
   Ingenieur—A designer of "engins" more especially one who conceives, invents, plans and creates.

10. Old English: (Circa 1600 N. O.) *Engine*—See engin in E. M. French.
    Also *Gin*
    Inginer—An inventor.
    Enginer—See Enginier in E. M. French.

11. Modern English: *Engineer*—A Technologist who plans, conceives, invents. (Also—a tender of engines).

(EDITOR'S NOTE: All credit to Engineer Laureyns, of Bloomfield, New Jersey, for this very interesting evidence of research.)

Can It Be Done?

By **D. V. PURINGTON, 3709 Tom Green Street, Austin, Texas**

In the present discussion of the movement to unionize engineers, the possibility of elevating the engineering Profession to the plane enjoyed by the medical and legal professions has been denied on the grounds that the doctor and lawyer deal directly with their clients, while the engineers are largely employed in numbers by corporations and governments.

Why is this the case? Are the lawyers and doctors more capable and intelligent than the engineers?

Really—it would seem that the admission by engineers that they are doomed to be employees and not capable of reaching the plane of dealing directly with their clients is an admission of inferiority. Perhaps, it is the old inferiority complex which is so characteristic of our profession that permits such an admission with apparent impunity.

Mr. Stuart Chase, in his book "The Nemesis of American Business," included a chapter "Prometheus Enchained" in which he describes the average engineer as follows: "At the beck and call the business man, the poor fellow can hardly be said to have a mind. He is narrow, near-sighted, over specialized even as his master. He has no more sense of state than a rabbit. But before he was yoked to the treadmill, there were moments when he glimpsed the dignity, the responsibility, the supreme challenge of his profession; when for a lucid interval he realized that he belonged to the most important profession in the world."

Is it impossible to conceive of engineers rating with lawyers and doctors in the practice of the profession?

It is true that the profession of engineering is younger than these other professions in the sense of professional recognition, but it is hardly true that it is younger in actual performance. In fact, it is more probable that there were engineering activities before the doctors and lawyers began to practice. By definition an engineer is a man who deals with the forces of nature for the benefit of mankind, and surely there were engineers among our first ancestors whose works, without the benefit of a safety engineer, resulted in the first need for a doctor and whose locations did not suit all of his fellow tribesmen, so that they had to go to law about it.

The 1930 census records a totol of 153,803 physicians and surgeons, 160,605 lawyers, judges and justices, and 226,249 civil, electrical, mechanical and mining engineers as gainful workers and it is undoubtedly true that a large number of these engineers are employed by governments and corporations.

But why does this deny them the possibility of reaching the plane of these other professions?

The doctor deals with the health and well being of a few hundred individuals. The sanitary engineer deals with the health and well being of thousands.

The lawyer composes laws and briefs for the protection of individual rights and property while the engineer enables the individuals to live in comfort to enjoy those rights and build the property for them.

It is due solely to the engineers themselves that they do not rank in status with doctors and lawyers. Why should the chiefs of the engineering services of our public institutions rank below the judges and political officers of those same institutions?

The principal reason is because the average engineer is not aware of the vital importance of maintaining public relations and contacts. There has been too much tendency to conceal their activities from the public for fear they would not understand, or because they felt that the defense of their logical plans in the face of personal greed and ignorance of the politicians would take too much time.

It is rather startling to compare the space given to the chief engineers of our public institutions and corporations in the public prints with that given the other public officials, yet his duties and activities are more vital to the welfare and development of the people than any of the other officials. The courts may cease to function for months and the other officials, other than police officers, can absent themselves for weeks from their offices without interrupting the general trend of human activities. The doctors can take their vacations without causing any greater ripple.

But, if the engineers should suddenly close their offices and abandon their activities in the same casual way—this present complex civilization of ours would suffer severe paralytic shocks. Lights, water, sewage disposal, heat, transportation and a host of other services are the results of the engineer's constant application to his job.

It is true that the majority of these services are public services and are not operated as private enterprises but this does not prevent the raising of the status of the men who are in charge of such service to the same high esteem as that given the members of the courts and the medical services.

The recent report of the Brookings Institute, advising against the establishment of a national Department of Public Works and the setting up of a cabinet post to be filled by an engineer, is as black a stain on the Engineering profession as has ever been painted thereon. It gives one of the most severe blows to Engineering prestige that could have been launched, and the blame for it can be placed solely and completely on the heads of the profession at large. As long as the majority of engineers continue to work and live like hiding ostriches, with their heads completely buried, there is no reason to suppose that the public or any one else will appreciate their worth or ability. There is no particular evidence to show the public that men behind these engineering works have the ability and character to function as leaders in government.

The profession is also unfortunate in that it has had some men who had the courage and character to attempt political leadership, but who did not realize the importance of support and for that reason they failed to establish the actual ability of the engineers satisfactorily before the people. Any engineer who has attempted to establish efficiency programs and sound economical operating systems in government without adequate support, should realize the difficulties that would face a lone engineer in a political organization.

These obstacles are not insurmountable—but miracles cannot be performed with men who are totally unresponsive. The engineers must get their heads up and demonstrate that they are really able to serve in positions of public trust with greater benefits to the public than the untrained individuals who are so often selected. They must get out and assume civic responsibility in their communities, even at the expense of their present smug comfort.

No wonder the engineers do not have the respect of the public they should have, if they fail to take their part in public affairs and refuse to overcome their inferiority complexes.

MICHIGAN

Engineers & Architects License Law

Governor Murphy appointed the following men to administer the new engineers and architects license law which becomes effective January 1, 1938.

ENGINEERS

C. Anderson (Mechanical)
Dean, College of Engineering
University of Michigan

L. Allen (Civil)
Professor, Civil Engineering
Michigan State College

H. T. McGaugham (Civil)
Registrar of Deeds
Oakland County, Pontiac

L. G. Lenhardt (Civil)
Commissioner, Public Works
City of Detroit

ARCHITECTS

L. C. Kingscott
Stewart-Kingscott

A. R. Morison
Morison & Gabler

Dirrick Hubert

For information address the State Board of Registration for Architects and Professional Engineers, Lansing, Michigan.

Current Opinion

Culture, Personality, and Ethics as Factors in Professional Training

Remarks of* JOHN KIRKLAND CLARK *at Conference on Professional Education, Held Recently at the Palmer House, Chicago, Ill.

The sentiments which have been expressed as to the need for better selectivity methods in the acceptance of students into our professional schools relate to one of the most important aspects of the problems which mutually concern us. Greater progress should—in fact, *must* and, I believe, will be made in the next thirty years in this field of personnel determination and life-work-selection than in any other field. Not only from the point of view of the individual student, but from that of the profession—and even more from the standpoint of the interest of the general public, those permitted to study for and enter the professions should be only those who can serve effectively. Thus far, we have failed lamentably in this field.

Especially in the appraisal of character—of the attitude toward professional service instead of toward business success in the profession with all too little regard for professional ethics—we do need better methods. We have made great progress toward accurate "mind-measurement". Character apraisal, we must sadly confess, is in its infancy.

It is doubly necessary, now, since the old close contact between the seasoned professional man and the learner which prevailed when apprenticeship was the method of teaching has largely ceased to exist. Today, for the most part, the nurturing of a sense of professional standards has been sadly neglected in our professional educational system. Such methods as are being tried out in Pennsylvania in the supervision of law students by a duly appointed professional man, designated by the Court as a preceptor, are worthy of careful study.

Unless we instill into our students, during their professional courses, the ideals of service to the public and inculcate into the very fibres of their beings a live sense of professional ethics, we shall continue to fail in our endeavor to create and maintain our professions as effective instrumentalities in the service of the community.

This problem is one which is common to us all, and the study of it by each of our groups and the exchange of ideas on methods should bring a rich reward.

One further thought, which I desire to contribute to the discussion of pre-professional education is the essentiality of making the educational training of the future members of a profession really cultural in the broadest sense of the word. As I view it, the greatest danger in the planning of the educational training, prior to entry into a professional school, is that too much attention may be given to the selection of courses which are primarily preliminary preparation, rather than training for the broad field of good citizenship. No person should be permitted to enter upon the study of a professional training course before receiving a thorough cultural training to render him, first of all, an educated citizen with a broad philosophical comprehension of the factors in life which make living worth while.

Without such broad general culture, it is difficult, indeed, to meet the demand for truly ethical development of those who are to become members of professions.

The three points, therefore, which I should stress, in our common endeavor, are a broad cultural training, a proper personality appraisal for the determination of the question whether the individual is suited for a professional life and the ingrained inculcation of ethical standards as a part of the educational system from the start to the finish.

DR. D. B. STEINMAN
Father of
THE NATIONAL SOCIETY OF PROFESSIONAL ENGINEERS
will speak:
At the Engineer's Club of St. Louis, January 13, 1938
and
Before the Missouri Society of Professional Engineers of Central Missouri, at Jefferson City, January 14, 1938

The Editors of "Allons" are grateful for the commendation it received at Hershey. We hope we shall continue to merit so many kind friends. Among our friends we point with pride to Engr. Robt. Hall Craig, Editor of THE AMERICAN ENGINEER. The good work he is doing there is known to all. Don't forget to give him your loyal support. To bring in the usual commercial—A little Advertising for the AMERICAN ENGINEER would be fine.

NEW JERSEY ASSOCIATION
OF
PROFESSIONAL ENGINEERS
AND LAND SURVEYORS
ANNUAL CONVENTION
January 14-15, 1938
Headquarters:
ELK'S CLUB
Journal Square
Jersey City, N. J.

Recommended Code of Practice for Professional Engineers and Architects

Nebraska State Board of Examiners for Professional Engineers and Architects

This is a code of practice. It is intended as a statement of conduct which is considered correct and honorable. It should be given careful study and meditation. Any Engineer or Architect whose conduct departs from this code of practice should be sure he is honorably justified in his actions.

General Principles

The engineer or architect shall recognize his duty to society, to his profession, and to himself. He shall conduct his practice in a manner consistent with the ideals of courtesy, personal honor and the ethics of a learned profession.

Relations with Public

The engineer or architect shall at all times and under all conditions seek to promote the public welfare by safeguarding life, health and property.

He shall not become associated with enterprises inimical to the public welfare, nor shall he identify himself with any project not of a legitimate character.

He shall promote and assist endeavors to advise the public of the requirements, responsibilities and accomplishments of his profession and its members.

He shall promote efforts tending to interest engineers and architects in the humanities with a view to active participation in public affairs.

Relations with Clients and Employers

The Engineer or Architect shall at all times advise his client or employer, fully and truthfully, of any personal interests, affiliations or prejudices, which might influence his judgment or impair the quality of his services. He shall also advise his client or employer of his knowledge of any private interests of other parties that might affect the work.

He shall, to the best of his ability, advise his client or employer, before undertaking any work, of conditions or influences tending to defeat the purposes or objects of such work.

He shall regard as confidential, information or knowledge of a client's or employer's affairs.

He shall not, in connection with any particular project accept compensation, financial or otherwise, from any person other than client or employer, without consent of all interested parties.

He shall not make a practice of offering professional services or counsel without fee.

Relations with Engineers or Architects

The engineer or architect shall not compete with fellow practitioners on the basis of professional charges, fees or other financial remuneration, nor shall free services be rendered with the hope of securing a job.

He shall not enter into competition for, nor attempt to secure professional work awarded on a basis of competitive bidding. Such practice is detrimental to the public welfare, and degrades the professions.

He shall not intentionally injure the reputation, prospects or business, nor shall be anonymously review or criticize the work, of another engineer or architect.

The engineer or architect shall refrain from endorsing or condemning ideas, theories, processes or proposals of fellow practitioners, unless he is especially qualified by reason of his experience to do so, and such action on his part is required because of his business connection with clients, or because said idea, theory or proposal may be considered dangerous or harmful to the profession, or to the public welfare.

He shall not seek to displace a fellow practitioner.

He shall not seek to retain or employ engineers or architects at a remuneration incommensurate with the services rendered.

He shall render assistance and encouragement to engineering or architectural students and apprentices and shall recognize the worth of their services.

Practice

The engineer or architect is entitled to fair compensation for all professional advice and service.

He shall retain as personal property, all original plans, specifications, designs, studies, patents and other data developed as a result of his work unless an agreement to the contrary has been entered into with client or employer.

He is charged with the exercise of quasi-judicial functions in matters of dispute and his position shall at all times be that of an impartial arbiter.

He shall recognize the limitations of his qualifications, and shall, where advisable, consult, retain or co-operate with experts and specialists, whether members of his profession or otherwise.

He shall not seek to hold out the work of others as his own and he shall not render professional services to persons or groups who refuse to credit him with such services.

He shall not evade responsibility for professional work performed by him or under his direction.

He shall bear in mind the undesirability and danger of rendering professional services for contingent fees.

He shall maintain a dignified interest in the affairs of the community and shall advise and co-operate generally with those interested in, or concerned with, matters of an engineering or architectural character which are pertinent to the public welfare.

Engr. Sacks Speaker

The Philadelphia Chapter of the Pennsylvania Society of Professional Engineers met Thursday, December 2d, at the Engineers Club.

Engineer Samuel I. Sacks, Chairman of the Legislative Committee of the National Society of Professional Engineers, was the speaker. His subject: "An Engineer's Illustrated Impressions of Europe."

Engr. M. L. Conneen is President of the Philadelphia Chapter, and Engr. H. F. Bamberger is Secretary.

* * *

New Registrations in Pennsylvania

Twenty-five Professional Engineers were registered in the State of Pennsylvania during October, as follows:

Aroyan, H. H., 130 Hilldale Road, Lansdowne, Pa.; Auchmuty, R. Laird, 2050 Koppers Building, Pittsburgh, Pa.; Beam, James R., Universal Sanitary Manufacturing Company, New Castle, Pa.; Bernhang, Samuel, 3138 French Street, Philadelphia. Pa.; Butler, Clifton L., 121 North Broad Street, Philadelphia, Pa.; Campbell, Harris S., 7 East Wharton Road, Glenside, Pa.; Chaundy, Carl D., 1 East Sunbury Street, Shamokin, Pa.; Day, Harold Q., 637 Coleman Avenue, Johnstown, Pa.; Gordon, Walter S., Jr., "Madryn", R. D. 1, West Chester, Pa.; Greenberg, Manuel A., 5700 North Woodstock Street, Philadelphia, Pa.; Haeberle, Harry Louis, 827 Passmore Street, Philadelphia, Pa.; Hansell, Elmer E., Conestoga Woods, R. D. 4, Lancaster, Pa.; Hartman, Frederick V., Aluminum Company of America, New Kensington, Pa.; Hechler, F. G., 343 East Prospect Avenue, State College, Pa.; Immel, John H., 1704 Lincoln Avenue, Northampton, Pa.; Kelley, Edward J., 338 West Market Street, Scranton, Pa.; Kiefer, Elmer Joseph, Jr., First Stroudsburg, National Bank Building, Stroudsburg, Pa.; Kupper, Charles J., 409 East Main Street, Bound Brook, N. J.; McLaughlin, Robert E., 7018 Louise Road, West Oak Lane, Philadelphia, Pa.; Otto, John Francis, 218 Boyles Avenue, New Castle, Pa.; Patterson, Elliott R., 4032 Green Street, Philadelphia, Pa.; Shedwick, William J., Jr., 212 Smith-Austermuhl Building, Camden, N. J.; Sturn, Rolland George, 460 Riverview Drive, New Kensington, Pa.; Thom, George Boyd, Swarthmore College, Swarthmore, Pa.; Willis, B. Harold, 33 Hillside Road, Mt. Holly, N. J.

Engr. Dechant Injured

Engineer Fred H. Dechant, of Reading, Pennsylvania, one of our National Vice Presidents, suffered injury through an automobile accident in Philadelphia on December 9th. He is recovering at the Women's Medical College Hospital, Henry and Abbotsford Road, Philadelphia, but by the time you read this notice, you can address him at his home address, Reading, Pennsylvania.

MERRY CHRISTMAS!

The officers of the National Society of Professional Engineers and the Editorial Staff of THE AMERICAN ENGINEER wish the members throughout the country a Happy Christmas Season and increased prosperity in 1938.

We will try to constantly improve our service to the Society.

NEWS OF STATE SOCIETIES

EDITOR'S NOTE: If your State Society is not represented in this month's news, contact your State Secretary and ask him to send monthly information to the editor. Please put THE AMERICAN ENGINEER, 222 North Third Street, Harrisburg, Pennsylvania, on your mailing list for all chapter and State Society Bulletins.

CONNECTICUT

CONNECTICUT SOCIETY OF PROFESSIONAL ENGINEERS

Annual Outing September 10, 11 and 12, 1937

Madison Beach Hotel and Golf Club
Madison, Connecticut

The CONNECTICUT SOCIETY OF PROFESSIONAL ENGINEERS held their Annual Outing and Informal Dinner Dance at the Madison Beach Hotel on Long Island Sound twenty miles east of New Haven, Connecticut, on Saturday, September 11, 1937. The Engineers and their ladies began to gather at the Hotel on Friday night, September 10th to enjoy the delightful social life at this choice hotel, situated on the beach in the most delightful section of the high class and exclusive summer colony of Madison.

The entire hotel and all its facilities were practically turned over to the Engineers for their Convention; committee rooms, men and women's cloak rooms, day use of private rooms for changing clothes, bath houses, beach chairs and umbrellas, tennis courts, card rooms, ping pong tables were furnished without extra charge or tips.

The splendid golf course of the adjacent Madison Beach Club was well patronized, so well in fact, that it was difficult to obtain quorums of the Board or its Committees. On the lawn in front of the 200 foot veranda of the hotel, animated contests in miniature golf took place, this golf outfit as well as paraphernalia for the soft ball game, darts, tug of war, archery, golf driving, quoits, and other field day games was loaned by the Engineers Club of Bridgeport.

At the business meeting in the morning a letter was read from the City Planning Commission of Bridgeport expressing their thanks and appreciation to the CONNECTICUT SOCIETY OF PROFESSIONAL ENGINEERS for the constructive work that the Professional Engineers Planning Committee did in connection with the Sub-Division Rules for the City of Bridgeport.

Two members, Engineer Alexander S. Lynch of West Haven and Engineer Nora S. Barney, Connecticut's outstanding registered woman engineer, of Greenwich, started to come to the yacht harbor at the Hotel in their large cabin cruisers, so that their boats could be used for the entertainment of those who might wish to sail or do off shore fishing on Saturday Afternoon and Sunday. However, due to very rough and windy weather in the morning, which made it too unpleasant they put back and brought their parties by automobile instead. Engineer Lynch, as the Hotel does not have a bar, opened a Committee room adjoining the main drawing room with an apparently unlimited supply of a plentiful variety of refreshment and his generosity was thoroughly enjoyed and appreciated.

A splendid shore dinner lunch was served at 1:00 P. M. Saturday followed by the afternoon's varied activities, which included golf, tennis, ping pong, bathing, quoits, cards, boating and even fishing for, and catching blues, that were running off "West Wharf" a historic spot within 200 yards of the hotel.

At 7:30 the guests reassembled from their different enjoyments in the spacious dining room for one of the famous Madison Beach Hotel course dinners. Individual bottles of Calvert Special Reserve were served to each guest at this Evening Banquet and each was presented with a propel pencil and a screw driver as favors. Ample space had been cleared for dancing during the meal and afterwards, for a brief period President Allen Hubbard acted as toastmaster and

CONNECTICUT SOCIETY OF PROFESSIONAL ENGINEERS
Codes of Ethics and Practice

General:

The professional engineer has a distinct opportunity to apply his special talents for the service of society. That this service may be performed efficiently and in a manner consistent with the high standards of dignity, integrity and honor of a learned profession, it is the duty of every professional engineer—

In His Relations With the Public to:

1. Interest himself in public affairs and apply his special knowledge, training and skill that property, health and life may be safeguarded and civilization advanced through improvement of the social and economic status of mankind.
2. Cooperate with others in the promotion of higher standards of engineering education.
3. Support legislation tending to advance the qualification standards, legal standing, economic welfare and public recognition of professional engineers and oppose legislation tending to deprive the engineer of any of his professional rights.
4. To refrain from associating himself with, or allowing the use of his name by any enterprise of questionable character.
5. Advertise only in a modest manner consistent with the dignity of his profession.

In His Relations With Clients and Employers to:

1. Act for his clients in professional matters as a faithful agent or trustee and with fairness to all concerned.
2. Inform a client or employer of any business connection, interests or affiliations which might influence his judgment or impair the disinterested quality of his services.
3. Treat as confidential his knowledge of the business affairs or technical processes of clients or employers where their interests require secrecy.
4. Refuse to make a practice of offering professional services or counsel without fee.
5. Accept financial or other compensation for a particular service from one source only except with the full knowledge and consent of all interested persons.

In His Relations With Engineers to:

1. Cooperate with engineers and engineering agencies in the dissemination of general engineering information and experience.
2. Recognize legally licensed registered practitioners of any State as members of his profession and extend to them courtesies and considerations not inconsistent with practice nor injurious to personal interests.
3. See that credit for engineering work is attributed to those who are the real authors of such work.
4. Avoid using unfair means to win professional advancement or to injure unjustly the professional reputation of another engineer or his chances to secure and hold employment.
5. Refrain from using the advantages of a salaried position in public service to compete unfairly with the engineers in private practice.
6. Refrain from using the authority of public office to discriminate between engineers seeking employment.
7. Refuse to underbid a fellow engineer by reducing his usual professional fees after having been informed of that engineer's charges.
8. Refuse to enter into competition for or attempt to secure professional work awarded on a basis of competitive bidding. Such practice is detrimental to the public welfare, degrades the profession and is strongly condemned.

Practice:

1. The engineer is entitled to compensation for all professional advice and service. His charges shall conform to general practice and he shall not render professional services for rates less than those recognized or established as minima.
2. He shall refrain from using improper or questionable methods of soliciting professional work and decline to pay or accept commissions for securing such work.
3. He shall recognize that it is undesirable, dangerous and unethical to render professional services for contingent fees.
4. He is charged with the exercise of quasi judicial functions in matters of dispute and he shall maintain at all times the position of an impartial arbitrator.
5. He shall recognize his limitations and shall, when advisable, consult, retain or cooperate with experts and specialists, whether members of his profession or otherwise, who have special competency.
6. He shall retain as personal property all original plans, specifications, designs, studies, patents and other engineering data developed as a result of his work unless an agreement to the contrary has been entered into with his client. Designs, data, records and notes made by an employee and referring exclusively to his employer's work shall be regarded as his employer's property.
7. He shall not seek to hold out the work of others as his own and he shall not render professional services to persons or groups who refuse to credit him with such services.
8. He shall assume responsibility for and whenever possible shall sign professional work performed by him or under his direction.

Submitted by the Committee on Ethics and Practice,
Joseph W. Cone, Chairman.
James D. Skinner,
Z. F. Cappabianca,
William P. Little,
John W. Shallenberger.

called upon the distinguished guests present to respond. Engr. Joseph T. Shea, who was present with Mrs Shea, President of the Massachusetts Society of Professional Engineers, told of the organization of that Society and the rapid progress that they are making in spite of the fact that Massachusetts has not yet enacted her registration law.

Mr. Leo J. Niekerk, Past President of the Association of Power Engineers was present with Mrs. Niekerk and they sat at the table with Past President Engineer Harry E. Harris and Mrs. Harris. Mr. Niekerk expressed satisfaction at the amicable relations between the professional and operating groups and the appreciation of the operating engineers in legislative matters and their thanks for the proferred aid of the Professional Engineers' Legislative Committee during the convening of the General Assembly in 1939.

Among other out of state guests present was Eng. William E. Miller and Mrs. Miller of 1935 Park Ave., Baltimore, Md. He is taking an active interest in professional engineering matters and is looking forward with interest to the development of similar activities in Maryland.

Engineer Harris spoke about the necessity of amending the Constitution to include an initiation fee for membership in the Society, both to defray enrollment costs and to prevent in and out membership, that is, members who drop out and rejoin to avoid the regular consecutive payment of their dues.

After the dinner, dancing in the Recreation Hall nearby, which was wired for sound, continued until early morning. A special Connecticut Society of Professional Engineers punch mixed for the occasion was provided by Engr. Harris and the punch bowl was not allowed to get empty.

This outing and dance was voted a huge success and the decision has already been made to have next year's outing at the same time and place.

In the press photograph taken Saturday morning are, reading from left to right, front row, Engr. Clarence N. Wiley, Chairman Arrangements Committee, President Allen Hubbard, Past President Harry E. Harris. Back row, standing, Engr. Frederic W. Carter, Chairman Reception Committee, Engr. Carl Gotthardt, Chairman Games and Golf Committee, Engr. Alexander S. Lynch, Chairman of the Refreshment and Fishing Committees and Engr. James D. Skinner, Chairman of the Committee on Ethics and Practice.

Other officers and chairmen, while present at the time but who could not be found to pose for the Press Photographer were Engr. John C. Wendes, Membership Committee, Engr. Lewis C. Smith, Secretary; Engr. William P. Little, Vice President; Engr. Richard C. Lipps, Publicity Committee; Engr. Robert Castro, Prize Committee.

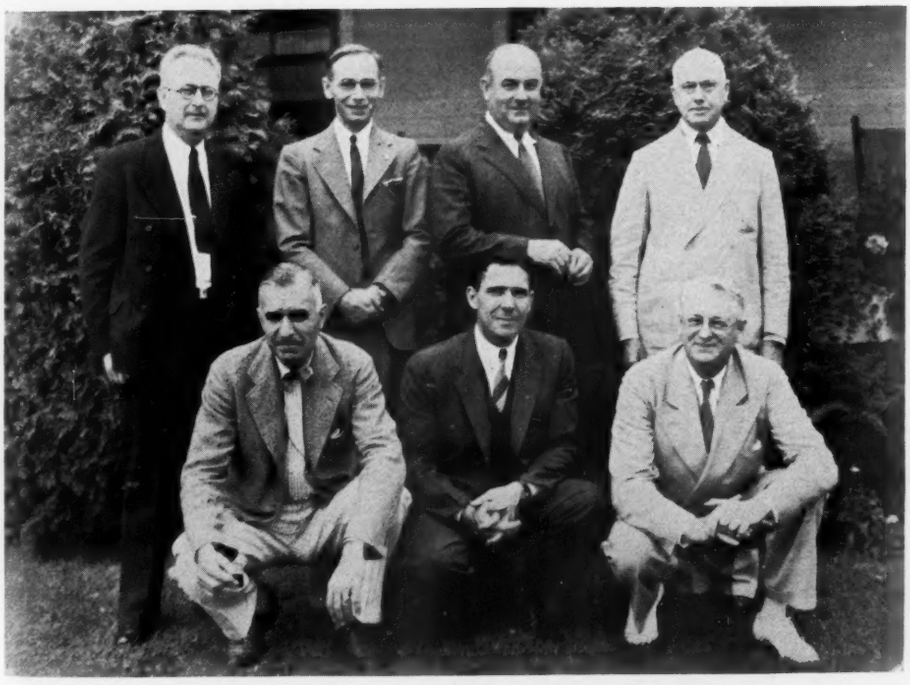
Others who took an active part in assisting the various committees were Engr. and Mrs. T. Fenner, Mrs. Robert Castro, Mrs. Lewis C. Smith, Mrs. Allen Hubbard. Engr. and Mrs. C. W. Rickerd, Engr. and Mrs. H. J. Blakeley, Mr. John Barney, Mrs. Harry E. Harris, Miss Harriet Harris, Mrs. Richard C. Lipps, Engr. and Mrs. Allen A. Watson, Engr. and Mrs. Albert Lawless, Miss Ruth Fennel, Engr. C. D. Munger, Engr. and Mrs. Robert B. Soderberg, Engr. and Mrs. Fred C. Richardson, Engr. and Mrs. William Shields, Engr. and Mrs. Perry A. Borden, Engr. Walter Wisschusen, Engr. and Mrs. James G. Crowther.

The prizes were awarded by Chairman Castro before adjournment from the dining to the Recreation Hall. The Winners of the principal prizes were: Automatic Silex Electric Coffee Maker—Mrs. Harry E. Harris; I. E. S. Better Sight Table Lamp—Engr. John Wendes; Electric Shaving Outfit—Engr. Robert B. Soderberg; Modernistic Electric Clock,—Engr. Joseph G. Crowther.

Quite a number stayed over for Sunday for morning golf or for deep sea fishing and for the famous Madison Beach Hotel Sunday Shore Dinner complete from chowder and steamed clams to fish and lobster with all the fixings for each course.

The Officers and Directors are indebted to all those who so generously helped to make this occasion such a huge success, and express the pleasure of the Society in greeting the out of state visitors. It is hoped that at its next year's outing, that many more visitors can attend from other State Societies and special arrangements at reduced rates will be made for their accommodation. It is felt that these sociable "get-to-gethers" will not only do much to cement friendships and loyalties between the engineers in different sections of one state, but that they will also do much to promote unity and co-operative spirit across state borders between the members of different state societies. There is much accomplished at these meetings that is not readily apparent.

In Charge of Connecticut Society's Dinner Dance



Back row, left to right: Frederic W. Carter, Chairman, Reception Committee; Carl Gotthardt, Chairman, Golf and Games Committee; Alexander S. Lynch, Chairman, Refreshment and Fishing Committee; James W. Skinner, Chairman, Ethics and Practice Committee.

Front row, left to right: Clarence N. Wiley, Chairman, Arrangements Committee; Allen Hubbard, President; Harry E. Harris, Past-President, Chairman, Legislative Committee.

INDIANA

I. S. P. E. NEWS LETTER

Issued by the Indiana Society of Professional Engineers, Inc.

CALUMET CHAPTER PRESENTS ENFORCEMENT PROBLEMS

The current enforcement problems of the Calumet Chapter of the Indiana Society of Professional Engineers were presented to the State Society at the monthly meeting. With President Frank Schutt, Secretary B. Hoffman and Enforcement Chairman Samuel E. Brownsten of the Calumet Chapter in attendance at the meeting, a detailed account was given of the Difficulties that the chapter had encountered in endeavoring to secure dismissal of public appointees who were practicing engineering in violation of the Indiana Registration Law.

Engr. Brownsten prefaced his remarks with a brief summary of the investigation work his committee had done in the Calumet district. He estimated that there were possibly 1000 engineers in this district that should be registered. His observation of the number of graduate engineers working at low pay, non-technical jobs while a large number of positions requiring technical education and experience were being filled by non-technical men spurred the committee to file a complaint against four city officials who are charged with a violation of the requirements of the Indiana Registration Act.

Those facing charges are Building Commissioners Thomas G. Nason, Gary; Henry Bainbridge, East Chicago; Joseph B. Guy, Hammond, and Assistant City Engineer Irwin L. Jones, Gary. The Calumet Chapter alleges these positions should, because of the character of the duties involved, be filled by registered engineers. Previous verbal protests with officials of these cities regarding these appointees had failed to bring any satisfactory response.

Engr. Brownsten asked the State Society for an expression of endorsement of their

action. Support of the State Society was given in a resolution commending the Calumet Chapter on the action they had taken in attempting to uphold the Engineers Registration Law in the cities of the Calumet region.

MEMORIAL PLANNED FOR HIGHWAY PIONEERS

In a resolution adopted at the September meeting of the Society, the Society went on record as favoring and advocating the acquisition of a tract of land, by the State highway Commission of Indiana, for recreation purposes as provided in a recently enacted law, and the erection therein of suitable tablets or monuments to the memories of Evan B. Stotsenburg and George M. Fritz.

Evan B. Stotsenburg, former Attorney-General of Indiana and a member of the State Highway Commission from 1933 to 1937, left a record of highway achievement during his term as a commissioner which has not been surpassed in the amount of construction that was accomplished and the efficient manner in which the large volume of work was conducted.

George M. Fritz was one of the first engineers employed by the State after the Highway Commission was formed, and he was the first engineer to die in the service of the State. Engr. Chesleigh Gray, Chief Engineer of the Highway Commission at the time, paid tribute to his fine character, his ability as an engineer and the high esteem in which he was held by the men with whom he was associated in his work. He said that the Society could do no finer act than to sponsor such a memorial.

Although the acquisition of a suitable tract of land would be the function of the State Highway Commission, and permission for the erection of the memorials would have to be secured from the Commission, the funds to provide the memorials would necessarily have to be raised by public subscription. As sponsors of this project, the Indiana Society of Professional Engineers will solicit contributions from its members as a nucleus for the memorial fund. Small contributions from a great number are to be solicited rather than a few large contributions.

CITY ENGINEERS START INVESTIGATIONS

The committee appointed by Pres. Cohen to study working conditions and salary scales among city engineers have already begun their investigations. Two additional members, Engineers Louis A. Geupel, Evansville, and Harry Overesch, LaFayette, have been appointed to the committee. Previous appointments were Engr. Clyde R. Yater, chairman, and Engrs. Henry B. Steeg and O. B. Weaver, members.

MEMBERSHIP REPORT

Engr. D. E. Pierce reports the following applications for membership in the Society: Louis A. Geupel, L. H. Kemmer, H. G. Bollinger, C. O. Schonert, Frank Blocker, B. R. Smith, Ray Seely, W. J. Krull, J. C. Clark, Meyer S. Efroymson, J. R. Melvin, L. B. Cray and Darrell C. Walton.

New Junior applicants are Ralph T. Simon and Harold W. Wilson.

CALUMET CHAPTER MEETINGS

Pres. Frank Schutt of the Calumet Chapter announces that their meetings are held the first Wednesday in each month, 8:00 P. M., at the Court House in Gary, and that any engineers who happen to be in that vicinity are invited to attend.

AN ENGINEER'S OPPORTUNITY
(Editorial)

The first clause in the preamble to the Constitution of the National Society of Professional Engineers reads as follows: "Recognizing that service to Society, to State and to Profession is the premise upon which individual opportunity must be builded." This statement, incomplete as to grammatical correctness, is sufficient to encourage a critical consideration by each engineer of the part he is playing in serving Society and the State.

The engineer who is taking an active part in the community and civic enterprises of his city is commended for the credit he brings to the profession. In too many cases these enterprises are left by the engineer to the doctor, the lawyer, the minister or teacher. The engineer has a social responsibility in his community as much as the man in any other profession, and he is well equipped to assume his responsibility if he will only devote a portion of his time.

The State General Assembly offers the engineer an opportunity for service to the State. With highway and bridge construction, highway safety and regulation, public works and conservation constituting major items in the business of the State, who is better qualified to represent his community in planning for this work than the professional engineer? Here again the engineer has stepped aside for the lawyer, the farmer and the political ax grinder.

Let us as engineers awaken to this opportunity, this responsibility, and encourage more of our number to seek representation in the General Assembly of our State.

NEW JERSEY

New Jersey Association of Professional Engineers and Land Surveyors, Inc.

CONVENTION NEWS

Official Publication of 1938 Convention Committee

No. 3 October, 1937 Vol. 1

Una Voce!

Raymond F. Leuthy, Secretary, Professional Engineers Club of Hudson Co.

Much has been said and read about conventions held in the past, many of which, we as members of the organizations holding them, were privileged to attend.

The 3d annual convention of the National Society of Professional Engineers at the Hotel Commodore in New York City on October 8th and 9th, and the coming of our own convention in Jersey City, next January prompts us to review the recent record-breaking show of loyalty of its members to the American Legion.

Hundreds of thousands of legionnaires from the remotest corners of the nation and its territories turned the world's largest city into an overcrowded mass of humanity. Their visit was not for the purpose of a holiday but to raise one voice in support of their organization in its endorsement or criticism of national policies for their common welfare.

The power behind that great body which represents a true cross-section of Americanism could have shown no better evidence than by the grand spectacle of thousands marching in a history-making parade that took seventeen hours to pass in review.

Our Association in New Jersey has had many interesting and well attended annual meetings, throughout the years of its existence, but can we truthfully state that the attendance at these meetings showed a majority of the engineering profession in this State present? Haven't we all too often heard the plaint of active members of our societies deplore the apparent lack of loyalty of engineers to their colleagues and the societies who raise their voice in his behalf?

We protest that our profession does not receive the recognition to which its importance and its personnel entitles it. We lament the fact that we are rated among the underpaid, yet we show indifference to the power that lies behind the one voice that can help us.

Our Association has given us the opportunity to win the prominence that is our just due, to make ourselves more companionable to our associates and more valuable to ourselves, by raising 3000 loyal voices in one, next January, in Jersey City, in the greatest engineering meeting we have yet held. Let us resolve to be faithful and offer loyal support to those who would put New Jersey Engineers on Display.

Final plans for the forthcoming convention are being rapidly completed and the indications point to an affair that will usher in a new era of accomplishments by the professional engineers of the State of New Jersey.

Careful and serious consideration is being given to all details to insure the success of the convention and at all times to maintain a proper professional attitude.

In searching for a keynote about which to revolve the exhibits and technical sessions, the need for announcing the progress in the State due to engineering ingenuity in all branches of the profession becomes more and more apparent. In consequence,

NEW JERSEY ON DISPLAY

from the engineer's viewpoint will be the theme of the 1938 Convention.

We will leave it to future conventions to carry on, showing progress during a period, future prospects and similar motifs.

On January 14 and 15, next, we expect to see the commodious facilities of the Elks' Club, located at Journal Square, Jersey City, filled to capacity by engineers from the far reaches of the State. We assure you that these facilities will be worked to the utmost from Friday morning until Sunday morning.

C. George Krueger, *Chairman,*
1938 Convention Committee.

Convention News requests all Chapter Representatives to send items relative to their Chapter activities to Raymond F. Leuthy, 12½ Nesbitt Street, Jersey City.

THE HUDSON ENGINEER

Published Monthly by the

Publicity Committee of the Professional Engineers Club of Hudson County, N. J.

Eighteenth Annual Convention, New Jersey Association Professional Engineers and Land Surveyors, Inc., Jersey City, N. J., January 14 and 15, 1938.

The Men of the Month

For outstanding engineering achievements, service to community in improving health and economy, *The Hudson Engineer* honors two of the most active members of the Professional Engineers Club of Hudson County. Engineer William G. Christy, M. E., Smoke Abatement Engineer of Hudson County, and his associate, Engineer John L. Hodges, M. E., Deputy Smoke Abatement Engineer.

The story of the important work being done under the direction and supervision of these two engineers is not localized but is known throughout the nation, and can best be told by the following reprint from *Jersey City:*

"Two of the best combustion engineers in the nation were brought to Hudson County on January 1, 1931 to minimize smoke by educating fuel users how to burn hard coal, soft coal, oil, coke, wood, and waste smoke-lessly. The campaign was a success. There is now 90% less smoke than there was six years ago. Hudson County is now one of the cleanest, healthiest industrial-residential centers in the world. It is estimated that half a million dollars annually is being saved by fuel users here, because smokeless-ness means the elimination of poor wasteful combustion. Jersey City, whose population amounts to about half of Hudson County, will benefit in the health and economy in proportion to its population.

"Over a million dollars has been saved by the fuel users in Hudson County as a direct result of smoke abatement activities. This is not due to the depression, but better combustion, brought about by improved stoking methods and installation of smoke eliminating devices and equipment. The figures are based on actual fuel consumption under present business conditions. Some plants have reported fuel savings running as high as forty per cent."

What was first frowned upon by many as just another political nuisance tacked onto industry, has been acclaimed by all as a genuine service department that has benefited all people and taxpayers by making their community a cleaner, healthier place to live in and their industries sounder economically. This is truly an engineering achievement.

CONVENTION FACTS

Date: January 14 and 15, 1938.
Convention Center: Journal Square, Jersey City.
Attendance: 3000.
Informal Smoker: Friday evening, January 14th.
Grand Banquet: Saturday evening, January 15th.
Sightseeing Trips: To points of engineering interest.
Sessions: Technical sessions, Friday, January 14th; business sessions, Saturday, January 15th.
Exhibits: Exhibition of engineering progress.
Comments: The biggest engineering show yet to be held in New Jersey.

PROFESSIONAL RECOGNITION

By N. J. McGuinness

The statement has been made many times, at engineering meetings and elsewhere, that professional engineers do not, as a rule, receive the recognition they deserve, or proper appreciation by the public of the various engineering works designed and executed by them.

The failure of the engineer to receive recognition in proportion to his work performed, is in a large measure his own fault. He has a tendency, all unwittingly, to belittle his own efforts, and in a way you cannot blame him. He belongs to a profession whose motto seems to be—"It can be done," so much so, that the general public has long since become accustomed to the performance of engineering feats hitherto deemed impossible.

Further—the engineer rarely gives the impression to the public that his work is difficult or that he will not be able to complete an assignment. As a matter of fact, his failure to execute a difficult assignment will be his downfall.

Not so the other professions. A lawyer may fail to win a case in court, or a doctor may fail to cure a patient of an illness, but in each instance the members of these professions retain their professional standing and receive payment for their services. Just think of the prestige and standing a lawyer or physician would have who could give a guarantee that his work in each instance would be successful!

There is quite a lot more to the question of the recognition of professional engineering work than appears on the surface. There is an old adage to the effect that you only get out of something what you put into it. Therefore, the remedy lays with the engineer himself.

The engineer, due to his technical education and practice, is eminently fitted to serve on many of the commissions appointed by the State and municipal authorities, but due to his reticence these places are usually given to members of other professions who have little or no knowledge of the many technical problems the commission may be called upon to solve.

Some action should be taken to make the engineer more politically-minded, not in the sense that he take an active part in politics but that he take a more active part in matters affecting the welfare of his local community and State, to the progress and well-being of which he has already contributed in no small measure.

> Since most engineers are reluctant to speak in their own behalf it is necessary that some engineering organization or group speak for him.

The Professional Engineers Club of Hudson County, through its committee on civic affairs, has already undertaken the sponsoring of a Rational Plan for Highway Development and at the monthly meetings to be held during the Fall and Winter will present for discussion among its members matters of civic interest on which the engineer is well qualified to pass judgment.

PENNSYLVANIA

PENNSYLVANIA SOCIETY OF PROFESSIONAL ENGINEERS PITTSBURGH CHAPTER

Let's put on a little more heat in the Membership Drive. This month has passed with only a single new member. Up and at them for next month. We need twelve new members to keep up the average.

There is only one way to have your ideas and desires incorporated in the action of the Society. Come to the meetings and let your ideas be known.

It is the sum of the moments that determines the maximum moment. Make your force a part of the sum. Don't forget, the point of applications makes a difference. The Chapter will give you leverage or a sounding board.

Eng. E. E. Appel does not belong to the Dapper Dan Club, but at your suggestion we have entered his name for membership.

EDITORIAL

Progress is made by taking stock of the past and planning for the future. This means, frankly discussing ways and means, determining a program and all pulling to accomplish the program. It is suggested:

1. The State Convention Committee be spread through all the Chapters.
2. If possible, the committee should be appointed annually for one year.
3. A more satisfactory date would be either late in September or early October.
4. Let us not start to move the site from place to place each year. If a change is made, let us do so only to arrive at a permanent site.
5. The arrangement of the agenda so as to include additional social contacts for all attending members and families, even if this means the addition of another day to the Convention period.
6. Observe the C. I. O. *Make a noise. Let's not let anybody be in doubt as to who is holding a convention.*

IT COMES UP HERE

The Executive Board of the State Society voted in meeting, at the Engineer's Club, Philadelphia, to prepare a legislative program in cooperation with the architectural profession.

The tentative program to cover:

1. Strengthening of the Registration Act.
2. Licensing of contractors. (This has already been accomplished in 14 states.)
3. Permit bills, requiring licensed architects or engineers to sign all plans used for governmental purposes.

The Board suggests the Chapter legislative committees discuss these matters and cooperate with the State Society. The committees are requested to address their findings to the Executive Secretary, Engr. T. W. Battin, 921 Widner Bldg., Philadelphia, Pa.

Yes, Eng. Camilli has a tendency to lean while walking; the reason is that he graduated from the Royal University of Pisa, the home of the famous leaning tower.

We have been asked several times why our secretary always smiles, although not seeking any public office. The only explanation we can give is: he wants to advertise his dentist. This drew 12 votes for County Surveyor.

Engr. J. A. Graft, Chest Springs, Pa., is acting secretary for the Johnstown Chapter. Let's all give Engr. Graft a hand in organizing the Johnstown Chapter. The Pittsburgh Chapter takes this opportunity to express its desire to cooperate in such ways as are possible. Engr. Graft what can we do to assist?

Engr. John Frederick, Box 525, Erie, Pa., is acting as secretary of the Erie Chapter, together with Engr. Albert K. Hubbard and Engr. Hugh M. Nelson, making up the organization committee.

The Pittsburgh Chapter will be glad to cooperate with you wherever we can be of assistance. You have only to tell us what would be of service and we will be out to get it for you.

NEW YORK

New York County Chapter News

The October meeting was held Oct. 26th, at 2 Park Ave., 26th floor—our new headquarters. The dinner at which 46 were present was held at 7 P. M. The meeting, of which Dr. Ralph H. McKee of Columbia University was Chairman, was called to order at 8 P. M.; seventy-eight persons were present.

Dr. D. B. Steinman, Past President of the National Society, spoke about recent developments for joint legislative service for the various engineering and architectural societies in New York State. Dr. Steinman was first appointed to represent New York County Chapter and later President Roche appointed him to represent the State Society in the same capacity. Several conferences were held during the summer. The facilities of the State Society Legislative Service were offered to the various groups and have been accepted by several societies among which are the Metropolitan sections of the American Society of Civil Engineers and the American Society of Mechanical Engineers.

Prof. J. C. Riedel, Director of the National Society and Past President of the New York State Society, spoke on the pending re-classification of the Municipal and State Civil Service in which our organization is taking an active part. It was pointed out that the sub-professional as well as the professional groups will benefit by the contemplated changes.

A. K. Johnson, Vice-President of the New York State Society and Chairman of the State Society Membership Committee, congratulated the Chapter on the results of its membership campaign. He stressed the need of greater attendance at meetings in order to appreciate the work which was being carried on and appealed to every member to do his part in bringing in new men.

The report of Maurice Deutsch, Chairman of the Housing Committee on the new New York City Building Code, caused considerable interest and discussion. The Committee was asked to give the matter careful study and to report further before any action was taken.

L. Davidson, Chairman of the Patent Committee, stressed the need for consideration of the patent situation by a National Committee. He was requested to report further at the next meeting.

A resolution, introduced by Lester R. Waugh, was adopted to be presented through the State and National Societies to request President Roosevelt to appoint civilian professional engineers to commissions requiring engineering supervision. It was pointed out that the National Society should stand ready to make recommendations to the President, if requested to do so.

John B. Walsh has been appointed Chairman of the Membership Committee in place of Maurice Deutsch, whose many activities place a premium on his time. During his chairmanship, 53 new members were obtained and the Chapter is grateful for his assistance.

Ross Hasbrouck has been appointed Chairman of a new Committee on Highway Safety. This committee will give special attention to highway design, highway illumination and traffic control with a view to reducing the tremendous toll due to accidents and deaths on our highways.

Russell V. Banta has been appointed Chairman of a new Committee on Labor Relations to deal with problems in connection with labor or engineering projects.

The next meeting of the Chapter will be held on the evening of Nov. 30th on the 26th floor of 2 Park Avenue, New York City. Edwin A. Kingsley, Consulting Engineer, will be Chairman. The feature of this meeting will be a talk on the Wards Island Sewage Treatment Plant by Walter D. Binger, Deputy Commissioner, Dept. of Sanitation, New York City. This will be the second of a series of talks on engineering projects in New York City. The first talk of the series was given at the May meeting by Ole Singstad, Chief Engineer of the New York Tunnel Authority on the Queens-Midtown Tunnel.

NEW JERSEY ON DISPLAY

An exhibit showing the facilities owned and operated by The Port of New York Authority will be one of the outstanding features of the 1938 Convention of the New Jersey Association of Professional Engineers it was announced today at the State Association Convention committee headquarters.

An animated model of the George Washington Bridge to exact scale, which shows moving vehicles traveling along the bridge roadway from shore to shore is part of the interesting display.

A carbon monoxide recorder, similar to the installations in the Lincoln and Holland Tunnels will give a visual demonstration of the manner in which a continual check is made to determine the presence of monoxide gas.

A "fish-eye" view of the Lincoln Tunnel will show how the strong cast iron lining surrounding the tunnel makes it possible for a double line of vehicles to travel in comfort and safety, 100 feet below the river's surface. Dramatic photographs that are fine examples of the camera-man's art will round out the exhibit.

The 1938 Convention of the State Association of The Professional Engineers will present New Jersey on Display from the Engineer's point of view. Convention headquarters will be established at the Elks Club, Journal Square, Jersey City. Technical and business sessions will be held on January 14 and 15, 1938.

The convention committee consists of Engineer C. George Kreuger, Chairman, Jersey City, The Port of New York Authority Staff; Engineer Jay A. Jacobs, Vice-Chairman, Engineer of Research, Colgate-Palmolive Peet Co., Jersey City; Engineer Hugh C. Clark, Secretary, City Development Engineer, Jersey City; Joseph C. Mauebeck, Treasurer, civil engineer, Union City.

Annual Meeting of N. Y. State Board of Examiners of Professional Engineers

The 175th meeting of the State Board of Examiners of Professional Engineers and Land Surveyors was held in the Regents Room, State Education Building, Albany, New York, November 17.

Of the total number of applications considered (168) 14 were held for further consideration, 72 were scheduled for written examinations, 59 were rejected, and 23 were approved for license.

With respect to failure to appear for written examinations the Board voted to recommend the following amendment to the regulations:

Except as hereinafter prescribed in these regulations a candidate who fails in more than one subject of an examination shall be reexamined in all subjects. Any failure to appear for an examination in any subject on the part of a candidate who has handed in papers in other subjects of the same examination shall be charged against him as a failure in that subject.

This being the annual meeting, the following officers were elected:

Chairman .....Virgil M. Palmer
Vice-Chairman ....Norman R. Gibson
Secretary .....Roy G. Finch

Washington State Society Welcomed

The National Society of Professional Engineers extends a most cordial welcome to the Washington Society of Professional Engineers, to whom a Charter was issued on December 2, 1937. The Washington Society having five county chapters and an initial membership of 211 engineers, is the twenty-second State Society of Professional Engineers to become affiliated with N. S. P. E.

The Officers of the Washington Society are:

President: Engr. Joseph E. Wickstrom, Consulting Civil Engineer, 865 Empire Building, Seattle.

1st Vice-President: Engr. James W. Carey, Chief Engineer P. W. A., New Washington Hotel, Seattle.

2nd Vice-President: Colonel W. C. Bickford, Chief Engineer & General Mgr., Port of Seattle, Seattle.

Executive Secretary and Treasurer: Engr. Karl F. Vaughn, Ph. D., Consulting Industrial Engineer, Mechanical & Chemical Field, 865 Empire Building, Seattle.

Board of Trustees: Engr. Joseph E. Wickstrom, Engr. James W. Carey, Engr. W. C. Bickford, Engr. Karl F. Vaughn, State Officers; Engr. Henry R. Stevens, King County Chapter, Seattle; Engr. C. C. Casad, Kitsap County Chairman, Bremerton; Engr. Elbert M. Chandler, Thurston County Chapter, Olympia; Engr. G. Granville Paine, Snohomish County Chapter, Everett; Engr. Claire Bowman, Pierce County Chapter, Tacoma.

These Washington pioneers will welcome your assistance. Let us all extend ourselves a mite and by telegram tell them how happy we are to have them with us.

WILLARD S. CONLON,
Sec'y N. S. P. E.

RESOLUTION

WHEREAS, The Steubenville Society of Professional Engineers has suffered irreparable loss in the death of Robert A. Carnahan, Steubenville, Ohio a Past President of our Society and Past Director of The Ohio Society, whose untiring work and loyalty was of inestimable value to the profession, now therefore,

BE IT RESOLVED, by The Steubenville Society of Professional Engineers that expressions of sympathy be transmitted to the bereaved family of said deceased Engineer Robert A. Carnahan, and

BE IT FURTHER RESOLVED, that this Resolution be entered upon the records of said Society.

EDWARD G. CASEY,
J. B. THOMPSON,
H. H. CAMPBELL.

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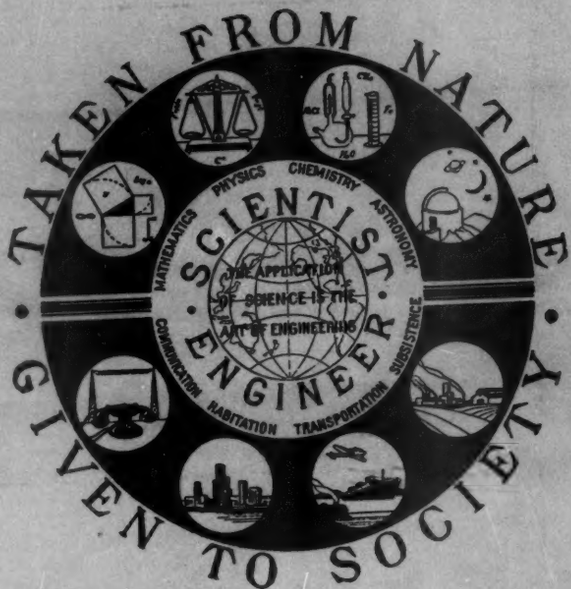
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